RECORD KEEPING: SELF-REPORTED ATTITUDES, KNOWLEDGE AND PRACTICE BEHAVIOURS OF NURSES IN SELECTED CAPE TOWN HOSPITALS

JOHANN MARTHINUS OLIVIER
(OLVJOH006)

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SUPERVISOR

Ms Una Kyriacos, MSc(Nursing) UCT
Division of Nursing and Midwifery
UNIVERSITY OF CAPE TOWN

DECLARATION

I, Johann Marthinus Olivier, hereby declare that the work on which this thesis is based is my original work (except where acknowledgement indicates otherwise) and that neither the whole work, nor any part of it has been, is being, or is to be submitted for another degree at this or any other University.

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DEDICATION

In loving memory of my Mother,

who always believed…

"We walk through this life but once and along the way we touch people's lives… Thank you for touching mine!"

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ABSTRACT

Record keeping: Self-reported attitudes, knowledge and practice behaviours of nurses in selected Cape Town Hospitals

Background: South African law holds nurses accountable for their acts and omissions and all documentation pertaining to patient care may serve as evidence in a court of law or at South African Nursing Council (SANC) hearings. Documentation can confirm or refute negligence and therefore should be an accurate and current reflection of what happened to the patient, particularly as litigation often arises long after care was rendered.

Objective: To describe the self-reported attitudes towards, knowledge of and practice behaviours of nurses, and the association between these factors and selected variables (category of nurse, gender, hospital sector, years of experience after registration/enrolment, day/night shift and practice discipline) relative to record keeping.

Methods: A quantitative, non-experimental study design, using a cross-sectional survey method to describe attitudes, knowledge and practice behaviour against predetermined measurement scales. Stratified random sampling and a questionnaire was used, with a 52.54% (186/354) response rate. Logistic regression models were fitted to determine factors associated with attitudes, knowledge and practice behaviour, fitted as binary dependent variables, each in a separate model. Strength of association was expressed as an odds ratio (OR), and a p-value of ≤0.05% was considered significant.

Setting: Three tertiary Government hospitals and three Private hospitals in the Cape Town Metropole, South Africa.

Findings: Demographically, the sample consisted of 92 Registered Nurses (RNs), 42 Enrolled Nurses (ENs) and 50 Enrolled Nursing Auxiliaries (ENAs) of which 94.62% (n=176) were female and 4.30% (n=8) male. The mean age of all respondents were 42.26 years (range 23 to 64) while 48.92% (n=91) of the respondents had more than 15 years of experience after registration/enrolment. Of the 186 respondents, 54.85% (n=102) worked in Government Hospitals, comprising 53 (51.96%) RNs, 25 (24.51%) ENs and 22 (21.57%) ENAs. The 45.16% (n=84) Private Hospital respondents consisted of 39 (46.43%) RNs, 17 (20.24%) ENs and 28 (33.33%) ENAs. Most respondents (18.82%, n=35) worked in Surgical Units and on day duty (70.43%, n=131).

A predominantly positive self-reported attitude towards record keeping was evident (71.74%, n=132/184). The negative attitude ratio in the Private sector (58.49%, n=31/53) was larger than in the Government sector (41.51%, n=22/53) (OR=2.049, 95% CI=1.043-4.025, p=0.037). A larger ratio of respondents working day duty reported a negative attitude (60.00%, n=30/50), compared to those working night duty (40.00%, n=20/50) (OR=2.171, 95% CI=1.066-4.423, p=0.033).

Although adequate knowledge levels relative to record keeping were reported by the majority of respondents (74.86%, n=137/183), there were some knowledge deficits. Inadequate knowledge level ratios were more evident amongst ENAs (45.65%, n=21/46) when compared to RNs (30.43%, n=14/46) (OR=4.179, 95% CI=1.873-9.321, p=0.000).

Similarly, acceptable levels of self-reported record keeping practice behaviour were evident amongst the majority of respondents (68.31%, n=125/183). A higher ratio of unacceptable practice behaviour was reported by RNs (39.66%, n=23/58) when compared to ENs (34.48%, n=20/58) (OR=2.727, 95% CI=1.266-5.877, p=0.010).

The most prominent practice behaviours reported by respondents included making use of a combination of record keeping approaches when keeping records, having regular record keeping audits, having sufficient supervision relative to record keeping, reading what other nurses have written and nurses writing in the progress notes themselves.

The three top ranked barriers to effective record keeping were interruptions while keeping records, insufficient time to effectively keep records and a lack of confidence in the ability to keep accurate records.

Conclusion: Although respondents, particularly RNs, reported predominantly positive attitudes towards, adequate knowledge of and acceptable practice behaviour relative to record keeping, there are concerns that the deficiencies amongst ENs and ENAs may have serious implications for patient safety for both the Government and Private Health sectors.

Significance to clinical practice: Deficiencies relative to record keeping attitudes, knowledge and practice behaviours were identified. The identified deficiencies could be used to implement record keeping improvement strategies.

Key words: *Record keeping in nursing, nursing documentation, nursing process, nursing record keeping standards.*

ABBREVIATIONS AND OPERATIONAL DEFINITIONS

1. Abbreviations

AIDS Acquired Immunodeficiency Syndrome

CPD Continuous Professional Development

DOH (South African National) Department of Health

EN Enrolled Nurse[1]

ENA Enrolled Nursing Auxiliary[1]

GNP Gross National Product

HIV Human Immunodeficiency Virus

NRSS Nursing Record Standard Sheet

RN Registered Nurse[1]

SANC South African Nursing Council

2. Operational definitions

Attitude: Perceptions, feelings or judgements related to a person's view regarding an issue (Colosi, 2006:1).

Behaviour: What nurses do, will do, or have done, when they practice their profession (Colosi, 2006:1).

Criteria: Specific components of a record keeping standard.

Documentation/record keeping: *"…written and/or computerised recording of relevant data made by nurses to document care given or to communicate information relevant to the care of a particular client/patient"* (NBT, 2003:4).

Enrolled Nurse (EN) [synonym – Staff Nurse]: A person who has completed a two year certificate course, and is enrolled with the South African Nursing Council (SANC) according to the provisions contained in the Nursing Act, 33 of 2005, and renders basic nursing care under the direct and indirect supervision of a Registered Nurse.

[1] Current SANC regulations stipulate these designations for the various nurse categories and will be used in this study even though new designations have been applied to nurses in the public sector since July 2007. The following abbreviations are used: ENs, for Enrolled Nurse/s, ENAs for Enrolled Nursing Auxiliary/ies and RNs for Registered Nurse/s.

Enrolled Nursing Auxiliary (ENA) [synonym – Assistant Nurse]: A person who has completed a one year certificate course, and is enrolled with the SANC according to the provisions contained in the Nursing Act, 33 of 2005, and renders elementary nursing care under the direct and indirect supervision of a Registered Nurse.

Guidelines for nursing record keeping: Practical rules for achieving criteria related to record keeping standards.

Knowledge: *"…essential information acquired in a variety of ways, expected to be an accurate reflection of reality, and incorporated and used to direct a person's actions"* (Burns & Grove, 2007:13).

Nurse(s): A generic term used to refer to a Registered Nurse, an Enrolled Nurse or an Enrolled Nursing Auxiliary whether male or female.

Nursing: A professional discipline and a science, concerned with caring for an individual, a group or a community, whether sick or healthy, through a professional partnership with other health care professionals (Uys, 1999:16-17).

Nursing Process: A scientific method of solving nursing related problems, whilst caring for a patient, achieved through thought, knowledge and experience – it consists of five phases: Assessment, Diagnosing, Planning, Implementation and Evaluation (Björvell, Wredling & Thorell-Ekstrand, 2002:34).

Nursing Record: The form or document on which nurses record patient data concerning assessment, care and evaluation.

Registered Nurse (RN) [synonym – Professional Nurse]: A person who has completed a three or four year diploma or four year degree course, and is registered with the SANC according to the provisions contained in the Nursing Act, 33 of 2005, and renders comprehensive nursing care independently, in the field of general- and/or community health- and/or psychiatric nursing and/or midwifery.

Scope of practice: *"The range of activities that can be carried out by a nurse who has met the established qualifications and credentialing criteria. It defines the limits of practice of a licensed/registered nurse."* (SANC, 2004:61).

Standard(s): Written statements regarding desired and achievable levels of performance that specify expectations, processes and outcomes related to the rendering of quality patient care (Katz & Green, 1997:90, 92, 95, 97, 306; SANC, 2004:61).

CHAPTER 1

INTRODUCTION

1.1 Introduction

This study of limited scope examines nurses' self-reported attitudes towards, knowledge of and practice behaviours, and the association between these factors and selected variables (category of nurse, gender, hospital sector, years of experience after registration/enrolment, day/night shift and practice discipline) relative to record keeping.

In this chapter the background and significance of this study is presented. The context of the study is explained by describing the concept of quality in health care, particularly within the South African situation that is impacted by the type of nurse training available and the nature of the health services.

1.2 Orientation to the field of study

The International Council of Nurses' (ICN) Code of Ethics (ICN, 2006:1, 5) broadly addresses the need for principles of record keeping and information management systems to ensure ethical practice, acceptable standards of clinical nursing practice and an environment that ensures patient safety and quality care. In the available published literature, record keeping standards are at times used synonymously with best practice guidelines and are described either in general principles or as related to a specialist field.

In the specialist fields there are standards that include competencies which are measured against documentation guidelines (Oncology Nursing…, 2008:1-9). Then there are best practice guidelines for discrete conditions such as the prevention of thromboembolism developed in, amongst others, Australia and New Zealand. Forms and decision-support tools have been designed to improve the systematic assessment and documentation of a patient's risk status and management thereby complementing the best practice guidelines (Schluter, Scotter & Chaboyer, 2008:3-7).

In 1989 a literature survey was conducted by Uys and Booyens (1989:29-31) to formulate record keeping standards for medical and surgical nursing units in general hospitals in South Africa. To date there appears to be no nationally approved record keeping standards, defined operationally in this study as *"written statements regarding desired and achievable levels of performance that specify expectations,*

processes and outcomes related to the rendering of quality patient care" (adapted from Katz & Green, 1997:90, 92, 95, 97, 306; SANC, 2004:61). Similarly, no approved record keeping guidelines, defined operationally as *"a practical way of achieving criteria for record keeping standards"*, are evident despite much having been written about the need for guidelines.

The quality of record keeping has both professional and legal implications. South Africans have relatively recently enjoyed the benefits of a liberal constitution in which human rights are embedded (South Africa, 1996:sec 2(7)). These rights have extended to government documents such as the Patients' Rights Charter (Patients' Rights Charter, [s.a.]) and the White Paper on Transforming Public Service Delivery (Batho Pele, 1997), for setting service standards. Patients are becoming increasingly aware of their right to make claims for clinical negligence and the main source of information for litigation is the patient's record.

The available literature indicates that to date, little if any research appears to have been conducted regarding the attitudes towards, knowledge of and the practice behaviours of nurses relative to record keeping in nursing. These aspects are explored in this study in selected Cape Town hospitals.

1.3 Background and significance of the study

Record keeping is defined as a *"…written and/or computerised recording of relevant data made by nurses to document care given or to communicate information relevant to the care of a particular client/patient"* (NBT, 2003:4). 'Hands-on' care and keeping accurate records remain a fundamental nursing responsibility (Owen, 2005:48). Advances in medical technology, increased awareness of patients' rights, the establishment of benchmarked standards and the injunction that *"…good record keeping is a mark of the skilled and safe practitioner"* (Owen, 2005:48), make it imperative for nurses to keep accurate records.

The nurse-patient relationship is characterized by communication and interaction. After determining the needs of the patient, the nurse accepts responsibility for planning, implementing, maintaining and controlling the actions aimed at improving the health status of the patient. Throughout this process, record keeping remains an essential element of effective care delivery, communication and professional responsibility (SANA, 1994:3; Teytelman, 2002:122).

In South Africa, nurses are accountable for their acts and omissions (Regulation 387 of the Nursing Act 33 of 2005),therefore all documentation pertaining to patient care may serve as evidence in a court of law or for a professional SANC disciplinary hearing for alleged misconduct. Documentation can confirm or refute negligence

and must be an accurate and current account of an incident particularly as litigation often arises long after care was rendered (Deane, McElroy & Alden, 1986:174; Dimond, 2005a:460).

Record keeping standards are essential (Katz & Green, 1997:91) to provide nurses with record keeping safeguards that are legally acceptable and current. Not only do standards provide legal safeguards, but through the process of creating, implementing and reviewing record keeping standards, a continuous quality improvement cycle is maintained.

1.4 Quality in health care

Record keeping is an integral part of health care delivery and quality patient care. The contemporary professional-ethical-legal framework within which modern nursing science functions, increasingly places more emphasis on patient records. Record keeping, caring, cognitive, interpersonal and technical nursing skills, problem solving and communication form the basis of nursing practice (Potgieter & Minnaar, 2002:212, 349).

Since W. Edwards Deming introduced the concept of Total Quality Management to the Japanese in the 1950s, it has become a cornerstone of cost effective utilisation of resources, continuous improvement and maintenance of standards (Robbins & DeCenzo, 2004:67). Not only are there several definitions of the concept 'quality' in management science, but also in the health care industry. For the purpose of this study, the definition of the American based National Association of Quality Assurance Professionals is adopted: *"[L]evels of excellence produced and documented in the process of patient care, based on the best knowledge available and achievable at a particular facility"* (Katz & Green, 1997:8).

Quality is enhanced by standards. Standards have four essential elements that have been tabulated to emphasise their importance (Table 1.1):

TABLE 1.1: The four essential elements of a standard

STANDARDS are required to:			
Be written	Provide a set of rules, actions or outcomes, specifically structure-, process and/or outcome standards: • Structure standards provide service delivery parameters; • Process standards indicate how services must be delivered; and • Outcome standards are indicative of desired and undesired outcomes.	Clarify consumer expectations, personnel functioning and system operation.	Be approved, either by an individual or group with the necessary authority to do so.
(Katz & Green, 1997:8-9)			

The establishment of sanctioned standards that meet the above criteria should lead to current and acceptable practice for which personnel can be held accountable. The non-negotiable nature of structure standards, complemented by the adaptability of practice guidelines, process standards, and inseparable from measurable outcome standards, ensures specific, measurable, appropriate, reliable and timely compliance (Katz & Green, 1997:8-9, 91).

1.5 The South African situation

Effective health care delivery in South Africa is one of the main challenges faced by the South African Government. Rebuilding a fragmented post-apartheid health care system, linked to an ailing infrastructure, limited monetary and human resources as well as the HIV/AIDS pandemic, adds to the burden. Approximately eight percent of the South African Gross National Product (GNP) is spent on health care in the Private and Public sector. The Private sector provides health care to 20% of the population, but consumes 60% of the eight percent GNP. The remaining 40% of the eight percent GNP is consumed by the Public sector, caring for 80% of the population and receiving only 40% of the total expenditure on health (DOH, 2007:2). Approximately 11% of the government's total annual budget is allocated to the Public health sector, in nine provinces. The utilization of these funds and the standard of health care delivered vary from province to province.

The three tiered public health system comprises Level 1 District Health Centres, focusing on Primary Health Care facilities in communities including free health care to pregnant mothers and children under six, Level 2 Regional Health Centres and Level 3 Tertiary Hospitals. The growing number of private hospitals and clinics has taken over many tertiary and specialist health service functions, mainly due to the change of emphasis from acute to primary care in the Public sector. In 2005/6 there were 161 private hospitals; currently there are in the order of 200. The mining

industry and the South African National Defence Force have their own hospitals and clinics. There are approximately 60 mining hospitals and clinics, and three military hospitals and various military health clinics around the country for exclusive use by its employees and their dependents (Health care in South Africa, 2010).

Health care is regulated by various professional bodies. The nursing profession has been regulated by the SANC, a statutory body established under the Nursing Act, since 1944 and more recently is provided for in the Nursing Act 33 of 2005. A nurse must be licensed annually by the SANC to practice. The SANC's vision, mission, objectives and guiding principles are outlined in Table 1.2.

TABLE 1.2: The vision, mission objectives and guiding principles of the SANC

Vision	***Mission***	***Objectives***	***Guiding principles***
• Regulate the nursing and midwifery professions to ensure safe and quality practice.	• To protect the public by setting education, practice and research standards; • Collaborate with relevant partners for holistic health care; • Monitor nursing and midwifery practice, based on set criteria; • Formulate and ensure the implementation of nursing and midwifery legislation and policies in response to societal needs.	• To promote the health standards of all South Africans; • To control the education and training of nurses; • To control the practice of nurses; • To promote liaison in the nursing education and training system thus promoting education and training standards; • To advise and communicate with the Minister of Health on: o any matter falling within the scope of the Nursing Act; o matters of public importance under the Nursing Act; and o possible amendments or changes to the Nursing Act in support of the universal norms and values of the nursing profession and to place greater emphasis on professional practice, democracy, transparency, equity, accessibility, and community involvement.	• Advocacy • Caring • Quality • Professionalism • Relevance • Innovation
(SANC, 2008a)			

1.5.1 Nurse training and workplace structures

As the South African population has grown, estimated in mid-2009 at 49.32 million (StatsSA, 2009:3), so too has the need for qualified nurses. Prior to 1990, universities provided undergraduate nursing programmes for the preparation of approximately 10% of the country's RNs whereas Nursing Colleges, affiliated to specific universities, offered diploma programmes for the preparation of approximately 90% of RNs. Nursing Schools affiliated to a specific Hospital or Institution provided certificated programmes for the training of ENs and ENAs. The training was government subsidised and those who qualified were employed mainly in the Public sector.

The rapid growth in the Private Health Sector since 1990 has increased the demand for qualified nurses. The resulting competition for the same nursing resources compelled the Private sector to start its own training centres, providing a workforce for its own needs. During this time nursing education was restructured and 'right-sized' at a central level by the government which meant the amalgamation of all the nursing colleges in each province into larger structures and the discontinuation of undergraduate nursing programmes at certain universities. This decision is currently under review as nursing shortages have reached critical levels. A one year community service system for RNs was introduced in 2006 in an effort to prevent newly qualified RNs from migrating to the private sector or to other countries where more lucrative options are offered. Despite these changes, the SANC still establishes macro guidelines for the core curriculum for nurse training programmes, including aspects like record keeping. Each School then undertakes micro curriculum planning, as there is no national record keeping guideline for training purposes.

The basic qualifications and related levels of responsibility and accountability for each category of nurse are outlined in Table 1.3:

TABLE 1.3: Current nurse training programs approved by the SANC

Qualification	***Training program***	***Role and scope of practice***
Registered Nurse	4-year diploma or degree course	• Renders comprehensive nursing care independently in the field of: o General nursing and/or o Community health nursing and/or o Psychiatric nursing and/or o Midwifery. • Carries ultimate responsibility for nursing care rendered • Including keeping records • Supervision of nurses of all categories • Act as Manager / Shift leader specifically in assessing, diagnosing, planning, implementing and evaluating patient care needs and nursing related aspects of care.
Enrolled Nurse	2-year certificate course (may continue with a 2-year Bridging programme to become a General / Psychiatric RN)	• Renders basic nursing care under the direct and indirect supervision of a Registered Nurse. • Responsible and accountable for own acts and omissions, • Delivers hands-on care: o Assisting with the assessment of patient needs. o Execution of planned basic nursing care, including record keeping.
Enrolled Nursing Auxiliary	1-year certificate course (may continue with EN training)	• Renders elementary nursing care under the direct and indirect supervision of a Registered Nurse. • Responsible and accountable for their own acts and omissions and delivers hands-on care related to the execution of planned elementary nursing care, including record keeping.
(Regulation 2598 of the Nursing Act 33 of 2005; Regulation 387 of the Nursing Act 33 of 2005; SANC, 2004:47-53).		

In hospital-based practice, one RN usually takes charge of a shift, assisted by one or two RNs and several ENs and ENAs allocated according to patient acuity levels.

The bulk of the hands-on care is rendered by the ENs and ENAs while the RNs serve mostly in a supervisory capacity, ensuring that tasks are completed and care standards are maintained. Although the Scope of Practice for the three categories of nurses differ, the requirement that record keeping must be accurate and clear remains constant (Regulation 2598 of the Nursing Act 33 of 2005; Regulation 387 of the Nursing Act 33 of 2005).

1.5.2 Quality in South African health care

In setting out its main quality assurance objectives, the national DOH confirmed its commitment to continuously improve the provision of quality care, stating: *"[A] quality health care system requires a national commitment to measure, improve and maintain high-quality health care for all its citizens*…[by]…*measuring the gap between standards and actual practice, and working out ways to close the gap"* (DOH, 2007:2).

The aforementioned commitment to quality improvement is also reflected in the preamble to the SANC's *Draft Charter of Nursing Practice* (SANC, 2004:6):

> *"Nurses and midwives are responsible and accountable for the provision of a professional service to the public which facilitates health and provides for and responds to the needs of the health care users and the public, such that they foster trust, collaboration and innovation through the –*
>
> - *practice of competent nursing and midwifery;*
> - *identification with, and adherence to ethical and professional standards and legislative requirements;*
> - *maintenance and facilitation of professional competence (knowledge, skills and values); and*
> - *active commitment to the improvement of quality of nursing, midwifery and health care".*

Since the publication of the Draft Charter in 2004 the SANC has not published guidelines on the operationalisation of these principles nor are there guidelines on effective record keeping, despite research undertaken in 1989 (Uys and Booyens) to establish record keeping standards. For this reason the researcher has undertaken a survey of nurses' attitudes towards, knowledge of and practice behaviours relative to record keeping, based on research validated but not nationally accepted record keeping standards and guidelines. As there is no national or local gold standard document for record keeping practices, each health care institution has

contextualised the basic principles in the form of a hospital policy and everyday practice. Not having a gold standard for record keeping may account for the reported poor and inconsistent method of documenting.

Uys and Naidoo (2004:1-7) conducted a study which described and compared the quality of nursing services and care rendered in three health districts in the KwaZulu-Natal Province in South Africa. A total of 137 records were audited and the mean percentage achieved was 11%, confirming that the quality of nursing records is generally poor. Poor record keeping is listed as one of thirteen quality deficits in both the Public and Private sectors in the identification of problems within the broader South African health care system (DOH, 2007:3).

1.6 Problem statement

The researcher is an experienced quality assurance nurse manager at a tertiary level hospital in Cape Town, South Africa, involved in auditing nursing documentation to ensure quality patient care. Here nurses apply hospital approved record keeping standards and guidelines inconsistently despite re-enforcement of principles through continuous in-service and remedial training, record keeping file audits and ad hoc ward teaching rounds. The inconsistent application of record keeping principles is also reported by colleagues from other institutions in Cape Town, other provinces in South Africa and the DOH.

1.7 Research questions

1.7.1 What are nurses' self-reported attitudes towards, knowledge of and practice behaviours relative to record keeping?

1.7.2 Are selected variables (category of nurse, gender, hospital sector, years of experience after registration/enrolment, day/night shift and practice discipline) associated with nurses' attitudes towards, knowledge of and practice behaviours relative to record keeping?

1.7.3 What are nurses' perceptions of published barriers to effective record keeping?

1.8 Aim of the study

The primary aim of the study is to describe nurses' self-reported attitudes towards, knowledge of and practice behaviours relative to record keeping in six selected Cape Town Metropole Hospitals. A secondary aim is to describe whether there is an association between selected variables and self-reported attitudes, knowledge and practice behaviours relative to record keeping.

1.9 Objectives of the study

1.9.1 To describe and compare the demographic and professional profile characteristics of the respondents.

1.9.2 To describe and compare the respondents' self-reported attitude towards, knowledge of and behaviour relative to record keeping, against predetermined measurement scales.

1.9.3. To establish whether there is a significant association between selected variables: category of nurse, gender, hospital sector, years of experience, day/night shift and practice discipline and the respondents' self-reported:

1.9.3.1 attitude towards record keeping;

1.9.3.2 knowledge of record keeping; and

1.9.3.3 record keeping practice behaviour.

1.9.4 To describe selected self-reported practice behaviours relative to record keeping: management support, approaches to record keeping, methods of correcting mistakes and making late entries.

1.9.5 To determine respondents' ranking of published barriers to effective record keeping for a local context.

1.10 Assumptions

This research project is based on the following assumptions:

1.10.1 that all nurses keep records and are involved in record keeping, in some or other form;

1.10.2 that record keeping is accepted as an integral part of nursing practice;

1.10.3 that the nursing process (assessment, diagnosing, planning, implementing and evaluation) forms the basis of effective record keeping in nursing;

1.10.4 that the quality of nursing care is reflected in nursing record keeping;

1.10.5 that all nurses have received training (formal or informal) in some form with regard to the importance of record keeping, including the essential principles;

1.10.6 that all institutions experience problems related to record keeping to some extent;

1.10.7 that electronic record keeping systems for capturing direct patient care information are not used by nurses in any of the selected Cape Town hospitals.

1.11 Layout of dissertation and brief summary of contents

This chapter presented the background to and relevance of this study as well as an outline of the aim and objectives of the study.

Chapter two provides a more specific overview of the literature regarding the relevance of the nursing process in record keeping, the principles of record keeping standards and guidelines and considerations in the application thereof. Problem areas in record keeping, determined through research by South African and various international nurse researchers are identified.

Chapter three justifies the choice of research methodology and design, including a detailed description of the research process. The research setting, study population, sampling procedures and sample size, data collection, methods to ensure scientific rigour, data management and data analysis are included. The chapter concludes with important ethical considerations addressed prior to and during the research.

Chapter four presents the research findings that are discussed in chapter five, in the context of the reviewed literature. In chapter six the study findings are summarised and conclusions and recommendations are presented in terms of the implications for nursing practice and further research.

1.12 Chapter summary

In the reviewed literature, record keeping standards are at times used synonymously with a broader concept, best practice guidelines, described either in general principles or as related to a specialist field. Standards may include competencies that are measured against record keeping standards and as best practice guidelines relevant to discrete medical conditions.

In South Africa no approved standards or best practice guidelines for record keeping exist, only general standards and guidelines. In this study, an aspect of this problem was explored by undertaking a limited local survey of nurses' attitudes towards, knowledge of, and practice behaviours concerning record keeping.

The next chapter provides an overview of the literature regarding the relevance of the nursing process in record keeping, the principles and application of record keeping standards and guidelines, as well as problem areas in record keeping.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of selected literature published in English and available to the researcher, describing the relevance of the nursing process to record keeping and the principles and operationalisation of record keeping standards and guidelines. Problem areas in record keeping are identified, established through research by South African and international researchers.

There is no approved national or local gold standard for record keeping practices in nursing in South Africa and this may account for anecdotal reports of poor and inconsistent methods of record keeping. Local health care institutions have contextualised basic principles of record keeping in hospital policy and everyday practice.

The purpose of this study was to describe nurses' attitudes towards, knowledge of and practice behaviour relative to record keeping, based on established record keeping standards and guidelines. The aim of this literature review was to create a clearer understanding of the topic being researched (Fouché & Delport, 2005a:123).

The literature search included the electronic databases CINAHL and Pubmed (MeSH). Internet searches used Google and Google Scholar to find key words. The review of international and South African literature was limited to:

- Keywords: Record keeping in nursing, nursing documentation, nursing process and nursing record keeping standards. The Pubmed (MeSH) vendor displayed 1979 articles of which 235 were review articles and 18 were available as free text, published between 1984 and 2009. Relevant, retrievable studies published in English were obtained;
- A description of the systematic process of nursing in terms of phases, each of which has to be recorded to improve the quality of care and for auditing purposes;
- Standards for hospital-based manual systems of record keeping in nursing as opposed to electronic systems; and
- Barriers and facilitating factors for effective record keeping practices.

Manual library searches focussed mainly on references compiled by authors in referenced articles. Literature published between 1997 and 2009 was reviewed but primary references and statutes from 1976 to 1996 were included to provide background and historical context. There is a paucity of published South African studies on record keeping in nursing.

2.2 Nursing: A systematic process of phases and record keeping

The process of providing nursing care is explained in terms of phases and each phase requires accurate record keeping. The nursing process is a systematic, scientific process based on theories, concepts and principles for effective nursing care delivery, especially in planning, executing and recording the quality of nursing care (Uys, 1999:25-29; Stevenson, 1993:286; Teytelman, 2002:122).

Although Florence Nightingale is not formally acknowledged as having contributed to establishing a 'process of nursing', she did set in motion the discipline and structures required to improve patient care (Yura & Walsh, 1978:2). The nursing process as a concept originated in the United Stated in the 1950s, championed by Lydia Hall who delivered a lecture entitled *"The quality of nursing care"* in 1955. Her basic assumption was that "*[n]ursing is a process"* to, for and with the patient. In the early 1960s, Ida Orlando further explored the process of nursing and included aspects on the interpersonal relationships in nursing as well as the differentiation of nursing activities. She was one of the earliest authors to use the term, *'the nursing process'* (Yura & Walsh, 1978:23).

Initially, four basic phases of the nursing process were identified by a faculty group at The Catholic University of America in 1967 (Yura & Walsh, 1978:25): Assessing, planning, implementing and evaluating. The modern nursing process, defined as *"a problem-solving method based on principles of scientific methodology…calling for thought, knowledge and experiences…"* (Björvell et al., 2002:34) consists of five phases with 'diagnosing' having been added as a follow-up phase to assessment.

To achieve the goal of quality care, recording the systematic nursing process, summarised in Table 2.1, ensures that information is available for evaluation, auditing and legal purposes and for accountability, for at least five years. The nursing process can be used in any branch of nursing. It is a useful tool for determining needs and planning nursing care, as it allows for changes and therefore ensures appropriate care at all times (Potgieter & Minnaar, 2002:204).

TABLE 2.1: A summary of the phases of the nursing process emphasising record keeping as foundational to all the phases

Assessment	***Diagnosing***	***Planning***	***Implementation***	***Evaluation***
Patient information is obtained from: • A nursing history interview; • A physical examination by inspection, percussion and auscultation • Other multi-disciplinary team members, notes and test results • Observation of physical, social and psychological level of functioning (Potgieter & Minnaar, 2002:205-207; Uys, 1999:26-27; Yura & Walsh, 1978: 95-98).	A nursing diagnosis entails a description of health-related aspects (patient problems/needs/activities) pertaining to nursing practice, guiding the planning of nursing interventions. It is different from a medical diagnosis, because it focuses on the nursing care needs of the patient, not necessarily linked to a medical diagnosis (Potgieter & Minnaar, 2002:207; Uys, 1999:27).	A RN plans nursing care in terms of his/her Scope of Practice (Regulation 2598 of the Nursing Act 33 of 2005) and according to the identified needs, problems and special requirements, with valuable input from ENs, ENAs, nurse learners and other multi-disciplinary team members. The written nursing care plan serves as a blueprint for action and a framework for evaluation (Potgieter & Minnaar, 2002:208-209; Uys, 1999:27-28; Yura & Walsh, 1978:115-116).	Prescribed actions in the Nursing Care Plan are carried out by the nurse through: • intellectual, interpersonal and technical participation in the nursing process and shift hand-over; • provision of information and education, by involving the patient and significant others; • support to the patient and significant others on a physical, psychological, social, emotional and religious level; • environmental restructuring by adapting the surroundings to the needs of the patient; • provision of general care: for the basic needs of the patient and facilitating self-care where possible; • observation, including monitoring the patient's reaction to treatment; • provision of specialised care, specific to the condition of, and treatment required by the patient; • co-ordination of the patient's care requirements: referral to other multi-disciplinary team members; • recording all patient events and reactions to care (Potgieter & Minnaar, 2002:209-210; Uys, 1999:29; Yura & Walsh, 1978:129).	The effectiveness of the nursing care plan and the care rendered is evaluated and adapted: • at least once a day by writing a progress report; • the evaluation must include a summary of the care given, the extent to which the care goals were achieved, the current status of the patient's condition: reaction to treatment and required alterations (Potgieter & Minnaar, 2002:211; Uys, 1999:29; Yura & Walsh, 1978:140-141).
RECORD KEEPING				
All the phases of the Nursing process have to be documented.				

13.

2.3 Purpose of record keeping in nursing

Within the context of nursing, record keeping is defined as a *"…written and/or computerised recording of relevant data made by nurses to document care given or to communicate information relevant to the care of a particular client/patient"* (NBT, 2003:4). This study is limited to manual record keeping systems as this is the system widely used in the South African context.

To accurately record nursing care rendered in the often chaotic world of practice (Schön, 1983:14), particularly in a busy hospital setting, is challenging. Every nurse has a professional and legal responsibility to keep accurate records as this ensures accountability for the care provided. The requirements for good record keeping practices in nursing are becoming more multifaceted due to the changing nature of nursing (Deane et al., 1986:174; Dimond, 2005a:460; Geyer, 2004:40; Tapp, 1990:229; Teytelman, 2002:122-123).

The reviewed literature advanced the following legal and professional considerations as reasons for keeping accurate records in nursing:

- To facilitate communication between team members regarding treatment required, care rendered and the response of the patient to treatment, thereby ensuring continuity of care by providing an up-to-date, comprehensive and concise view on the condition of the patient (Deane et al., 1986:174; Dimond, 2005a:461; SANA, 1994:4, 21-22, 23; Tapp, 1990:238; Teytelman, 2002:122; Troskie, 2002:346; Wood, 2003:26, 27).
- To serve as a record of problems and difficulties experienced while caring for the patient, including steps taken to resolve these (Deane et al., 1986:174; Dimond, 2005a:460; SANA, 2004:21-22; Troskie, 2002:346).
- To provide a holistic picture of physical, psychological and social factors that influence the patient's well-being (Teytelman, 2002:123; Troskie, 2002:346).
- To provide a chronological legal record of all care aspects concerning the patient, from admission to discharge (Dimond, 2005a:460; SANA, 1994:71; Tapp, 1990:239; Teytelman, 2002:122; Troskie, 2002:346).
- To facilitate nursing care audits, while providing valuable information with regard to areas that need improvement (Deane et al., 1986:176; Dimond, 2005a:461; SANA, 1994:23; Teytelman, 2002:122; Troskie, 2002:346).
- To measure compliance with care standards (Deane et al., 1986:176; Dimond, 2005a:461; SANA, 1994:23; Teytelman, 2002:122; Troskie, 2002:346).

- To serve as a teaching tool (Dimond, 2005a:461; SANA, 1994:23; Troskie, 2002:346).
- To protect nurses against litigation (Aiken & Catalano, 1994:236; Deane et al., 1986:175; Dimond, 2005a:461, 462; Teytelman, 2002:121-122; Troskie, 2002:346; Wood, 2003:26).

To limit the incidence of in-hospital adverse events such as avoidable death or injury to a patient (Chaboyer, Thalib, Foster, Ball & Richards, 2008:255), resulting in claims for clinical negligence that are costly (Kaboli & Rosenthal, 2003:155-156; Andrews, Stocking, Krizek, Gottlieb, Krizek, & Vargish, 1997:309-313; NAO, 2001:13; Brennan & Leape, 1991:2-8), several regulations promulgated in terms of the Nursing Act, 2005 (Act 33 of 2005) instruct South African nurses to keep accurate records:

- **Regulation 2598** (as amended) refers to the scope of practice of persons who are registered or enrolled in terms of the Nursing Act, 2005 and defines a nursing regimen as *"…the provision of nursing care plans, their implementation and evaluation thereof and the recording of the course of the health care problem, the health care received by a patient and its outcome…"*.
- **Regulation 387** (as amended) refers to rules setting out the acts and omissions in respect of which the Council may take disciplinary action against nurses for *"…wilful or negligent omission to keep clear and accurate records of all actions which he (she) performs in connection with a patient."* (Chapter 2, rule 5).

Having outlined the professional and legal reasons for accurate record keeping in nursing, what follows is a description of more structured and measurable standards and guidelines for record keeping.

2.4 Standards and guidelines for record keeping in nursing

In a developed country such as Australia it is noted that "*[w]ith 1 in 10 people entering hospital experiencing harm as a result of their care and not related to the reasons that they were admitted"* (Wilson, Runciman, Gibberd, Harrison, Newby & Hamilton, 1995:458-471) patient safety is emerging as a major driving force in health care (Chaboyer & Blake, 2008:121-123). The ratio of patients at risk of in-hospital adverse events in South Africa was not found in the available literature. In principle, good record keeping improves patient safety by providing an accurate record of events and care rendered, when medical records are reviewed. When medical records are missing or incomplete, the quality of the review is compromised

(Wilson, Harrison, Gibberd & Hamilton, 1999:415). The golden rule for record keeping remains: *"If you did not record it, you did not do it"* (Deane et al., 1989:174; Herbst, 1997:39; Teytelman, 2002:122).

A safe patient environment must be created and maintained for all patients especially for those who are delirious, confused, aggressive or sedated and precautionary measures must be instituted and recorded timeously (Herbst, 1997:39). Since the publication of the *Draft Charter for Nursing Practice* in 2004 the SANC has not published guidelines regarding the operationalisation of their quality improvement commitment, nor for effective record keeping, despite research undertaken in 1989 (Uys and Booyens) to establish record keeping standards. The absence of nationally accepted standards for record keeping may account for local reports of poor and inconsistent record keeping methods.

A literature survey conducted by Uys and Booyens (1989:29-31) resulted in the formulation of three standards to ensure good record keeping:

- Records must comply with legal requirements;
- Records must be a complete reflection of the patient's condition and the nursing care rendered; and
- Records must be a reflection of reality.

In Table 2.2 the researcher combined the three standards with local and international record keeping criteria.

TABLE 2.2: Three South African record keeping standards contextualised in the international scene

RECORD KEEPING STANDARDS AND CRITERIA		
STANDARD 1 ***Records must comply with legal requirements***	***STANDARD 2*** ***Records must be a complete reflection of the patient's condition and the nursing care rendered***	***STANDARD 3*** ***Records must be a reflection of reality***
Criteria	***Criteria***	***Criteria***
• The records must be kept in permanent form. Permanent (black) ink must be used (Dimond, 2005a:461; SANA, 1994:47; Teytelman, 2002:124). • The date and time of each entry must be indicated. The date must be inserted at least once per progress and evaluation report page and/or when a new day starts. The actual time must be indicated with every entry made (Dimond, 2005a:461; SANA, 1994:48; Teytelman, 2002:124; Wood, 2003:27). • Entries must be legible. This ensures continuation of care, effective communication and credibility in medico-legal cases (SANA, 1994:48; Teytelman, 2002:122). • Only nationally approved and grammatically correct abbreviations must be used. Approved abbreviation lists per institution or hospital group are acceptable (SANA, 1994:48; Teytelman, 2002:124), but must form part of the patient's permanent record. Although approved abbreviation lists are cited internationally, caution is advised by amongst others, the United Kingdom's Nursing and Midwifery Council (Dimond, 2005b:665-666; Wood, 2003:27). • The nurse making an entry must be identifiable by name and legal designation. An entry must be signed in full, by the person who made it – initialling is not acceptable (SANA, 1994:49; Wood, 2003:27). All staff making an entry in patient documentation must print their initials and surname at least once per patient stay, as signatures are often illegible and/or difficult to identify (Dimond, 2005a:461; Teytelman, 2002:124). • All apparatuses used must be identified (by name) in the records when used. Included are ventilators, infusion pumps, saturation monitors, vital signs monitors, Continuous-Passive-Movement (CPM) machines, anti-embolism pumps and cot-sides, to mention a few (SANA, 1994:49). • Entries must not be made before an action is taken. Records must be updated as soon as possible after an action, observation or treatment (SANA, 1994:49-50). Late entries must reflect the actual date and time when the entry is made, the approximate time of the action, observation or treatment and the fact that it is a late entry (Teytelman, 2002:124; Wood, 2003:27). • Changes must be ruled out with a single line, signed in full, including a legal designation, and dated. The original entry must still be legible (Deane et al., 1986:175; Dimond, 2005a:461; Documentation in Action, 2006:71; SANA, 1994:50; Troskie, 2002:347; Teytelman, 2002:123, 124; Wood, 2003:27). The use of correction fluid, erasing and covering with stickers is prohibited, as this might be interpreted as wanting to	• A written record of a complete admission assessment and regular patient assessments (at least once per shift) in addition to performing regular observations, care rendering and investigations that are recorded on flow charts are evident. • Progress and planning notes must include any changes in condition, visits from other health care team members, nursing orders, new or changed nursing actions, the physician's treatment plan (including medication and the patient's reaction to it) and patient movements. • Requests from other multi-disciplinary team members must also be recorded immediately, for example a telephonic prescription for medication. • Comprehensive discharge notes must be recorded (Deane et al., 1986:175; Dimond, 2005a:461; Geyer, 2004:41; Teytelman, 2002:124; Wood, 2003:26-27).	• The use of scientifically correct terminology (Troskie, 2002:347): Nursing is based on scientific foundations and therefore scientific principles should be applied in practice (SANA, 1994:70). Reference to results and measurements must include the unit of measurement, for example a blood pressure measurement must be recorded as 130/70 mmHg. • Addressing the central/important problems and needs of patients: A flexible, but specific approach to documenting patient care, through utilisation on the nursing process, must be used. Vague statements like "Patient had a good night", "No complaints raised" or "Routine care rendered" must be avoided in favour of statements that describe the quality of care rendered, for example "The patient says that he slept well", "The patient did not require any analgesia in the past 4-hours" or "Vital signs measured and recorded – all within normal adult parameters" (Dimond, 2005a:461; Dimond, 2005c:568; Potgieter & Minnaar, 2002:207; SANA, 1994:70; Teytelman, 2002:123, 124; Wood, 2003:26). • Providing a chronological report of the sequence of events (Dimond, 2005a:461; Geyer, 2004:42; Teytelman, 2002:124). • No false statements or statements that are open to interpretation must be recorded: Statements with regards to undefined periods of time, for example "Mr Mashiba asks for pain medication every now and then" must be avoided. It is recommended to rather write: "Mr Mashiba received Pethidine 50 mg IM twice in the past 12-hours". Statements reflecting undefined quantities, for example "A large amount of urine drained via the urinary catheter in the first hour after surgery," must also be avoided. It is recommended that objective information must be recorded, for example: "The urinary catheter drained 200 ml of clear straw-coloured urine in the first hour after surgery." Blood stains could be described according to size, that is, instead of writing: "+++ blood drained from his wound", rather write: "Bloody fluid drained from his wound onto the linen, approximately 30 cm in diameter" (Dimond, 2005a:461; Geyer, 2004:42; Teytelman, 2002:123; Wood, 2003:27).

RECORD KEEPING STANDARDS AND CRITERIA		
STANDARD 1 ***Records must comply with legal requirements***	***STANDARD 2*** ***Records must be a complete reflection of the patient's condition and the nursing care rendered***	***STANDARD 3*** ***Records must be a reflection of reality***
Criteria	***Criteria***	***Criteria***
hide information. • Records must be identified. Every page of the patient record must be identified with either a patient-specific label (sticker), or if not available, the recorded information, including at least the hospital number, surname, initials, title and ward/department name (Teytelman, 2002:124). At least two "identifiers" must be used: Identifiers are person-specific information that reliably identifies a patient in a health care facility in order that service or treatment could be matched to the specific individual. The same identifiers must be used throughout an institution/organisation (Geyer, 2004:41). These identifiers could include a unique hospital number, surname, initial(s) and title, personal identity number or medical aid numbers.		

Record keeping standards are operationalised through specific guidelines that are often based on local circumstances to satisfy legal and professional requirements for documenting the nursing management of a patient. Surveying the international and local literature reveals various guidelines for record keeping, summarised in Table 2.3 by the researcher.

TABLE 2.3: A summary of international and local record keeping guidelines*

Patient records	
Criterion	***Guideline for Action***
Change in a patient's condition	Report concerns to the doctor/person in charge of the unit or department, recording the reason for the concern, what was done, who it was reported to and what action was taken.
Time an event occurred	Record the precise time of the event – a late entry is made if writing up is delayed.
Post-operative status of a patient's condition	Record fluid loss such as urine volume, drainage from wounds, wound drains present, infusions administered. Indicate if measured/drained/changed in the operating theatre or on return to the ward. A urine bag is emptied on the patient's return to the ward and the volume measured and recorded as this gives the nurse a basis for further evaluation. If the urine bag is empty, "0 ml" is recorded. The same applies to wound and other drains.
Monitoring equipment	Record alarm settings and parameter readings as frequently as prescribed. Record the serial numbers of electro-mechanical equipment being used.
Administration of analgesics	Record the: • Date and time of administration – to correspond on the progress report, medication chart and Scheduled medication register (if applicable); • Type of analgesic; • Dosage administered; • Anatomical site and route of administration, for example "Tramal® 100mg given intramuscularly in the left gluteus maximus, as prescribed".

Patient records	
Criterion	***Guideline for Action***
Evaluating and updating nursing care plans	Record in the progress and evaluation reports at least once during a shift and according to patient problems / needs / activities identified in the nursing care plan.
Laboratory results, including blood gas analysis	Record on the appropriate document and/or in the progress report and include the date, time and name of the person receiving the results. Blood gas analysis results in the patient records. Attach printouts securely to patient records without obscuring other information
Completeness of records	Date and number all pages of the patient record on all sides. No lines to be left open between entries, but if no alternative a ruled line is drawn through the open line and signed. "Routine procedures", for example changing linen, must be recorded.
Signatures	Sign all entries. Sign the progress and evaluation report on the last line and include the legal designation, even if the entry continues on the next page Sign the appropriate flow chart where vital sign recordings are reflected
Clinical decision-making about frequency of vital sign monitoring	When a patient's condition deteriorates or changes monitor and record the vital signs more frequently and ask for skilled assistance if this is required
Reporting details of other health care professionals	When referring to other health care professionals, record their legal designation, initials and surname.
Patient teaching	Record details of patient teaching provided and preferably have the patient sign that it was given.
Confidentiality of patient records	All patient records to be managed as "Medically Confidential". In South African law, the Promotion of Access to Information Act, 2000 (Act 2 of 2000) as amended and the Human Rights Commission Act, 1994 (Act 54 of 1994) as amended, determine that under certain circumstances, patient information and/or records must be provided when so instructed
(Deane et al., 1986:174; Dimond, 2005a:461 & 2005c:568; Herbst, 1997:39-41; Geyer, 2004:40-42; Tapp, 1990:229; Teytelman, 2002:122-124; Wood, 2003:26)	

*Table created by the researcher as guidelines and criteria for action, extrapolated from the literature and used as such in this study.

Having established that formulating record keeping standards and following guidelines are essential to keep effective records, the question remains: Why are problems regarding record keeping still being reported? Barriers to effective record keeping will be explored next.

2.5 Barriers to effective record keeping

Record keeping is a professional and legal responsibility. Ensuring compliance with record keeping principles and guidelines, is one of the challenges facing nurse quality assurance managers (Tapp, 1990:229). There is a relationship between good nursing care and record keeping: *"[T]he conditions that bring about good care are also responsible for bringing about good recording"* (Donabedian, cited by Phaneuf, 1976:48). The conditions that bring about good care, which are also responsible for bringing about effective record keeping, have been explored by several nurse researchers. Certain recurring barriers to effective record keeping have emerged from a synthesis of these research findings.

2.5.1 Lack of time to keep adequate records

Research suggests that nurses view record keeping as a 'nice to have' if time allows, or alternately, as something done at the expense of patient care. It may be a matter of writing something for the sake of it, rather than recording crucial or important nursing care related information (Pelletier, Duffield & Donoghue, 2005:44; Tapp, 1990:234; Wood, 2003:26).

Cheevakasemsook, Chapman, Francis and Davies (2006:369-371) found that recording completed nursing procedures requires an average of 1 253 minutes of a 24-hour nursing day (20 hours and 53 minutes; 87%). Martin, Hinds and Felix (1999:350) found that on average nurses spend 12% of a 24-hour day (2 hours and 53 minutes) on this activity compared to an average of 3 hours 39 minutes (15%) found by Deane et al. (1986:175). The reasons for these variations can be speculated upon, for example different methodologies were employed in each of these studies and therefore comparisons should be made with caution. However, the lack of time to adequately keep records is frequently mentioned when record keeping practices and outcomes are researched.

A comparative descriptive study by Björvell, Wredling and Thorell-Ekstrand (2003:209-212) found that 20% of RNs included in their study believed that they did not have sufficient time to keep adequate records while 62% indicated that they had sufficient time 'to some degree'. In the same study the lack of time to document nursing care was ranked first and second by the intervention and control groups respectively, confirming that perceptions vary. In a prospective, comparative and quasi-experimental (non-randomised) study conducted by Darmer, Ankersen, Nielsen, Landberger, Lippert and Egerod (2004:328), 95% of the respondents indicated that the time for record keeping was insufficient, and in another work sampling study clinical information and observations were only recorded 37 to 38% of the time, citing time constraints, amongst others, as a contributing factor (Pelletier et al., 2005:44).

Patient acuity, number of, and skills-mix of nurses, inaccessibility of charts and patient care requirements influence nurses' perception of the amount of time available for patient care and record keeping (Howse & Baily, 1992:374). Interestingly, in Tapp's qualitative study (1990:235) it was found that even when the workload demands were low, the participants still indicated that the standards of record keeping were not adequate.

From the literature reviewed there was no consensus on the amount of time that nurses spend on record keeping, nor was it clear how much time should be spent on this activity. This is due to the varied nature of institutions, documentation systems,

professional attitudes and skills, patient acuity levels and skills-mix, to name but a few. What the literature confirms is that perceptions exist that the availability of time affects nurses' performance with regard to clinical record keeping (Björvell et al., 2003:209-212; Pelletier et al., 2005:44; Tapp, 1990:235).

2.5.2 Environmental factors

The lack of adequate facilities and a space for writing and thinking about records, inhibit effective recording of nursing practice (Tapp, 1990:235-236). This aspect was ranked second and fourth respectively by the intervention and control group, when participants in a comparative descriptive study were asked if facilities available for documenting care were adequate (Björvell et al., 2003:212). Areas most often used for writing records include the Nurses' Station, at the bedside, the Nursing Unit Manager's Office, dining areas and the ward corridor (Pelletier et al., 2005:43, 44). Most of these localities are either high traffic areas where several activities are likely to take place simultaneously, or is accessible to, and used by various multi-disciplinary team members, making it less suitable for recording clear, accurate and detailed information.

Environmental disruption, including interruptions and noise, are also regarded as factors impacting negatively on record keeping and record keeping practice behaviour (Howse & Bailey, 1992:375).

2.5.3 Documentation systems

By implication, record keeping entails the use of nursing documentation (or forms) and a specific record keeping approach, to capture the process of patient assessment, planning, care and evaluation. The record keeping approach utilised is based on a specific nursing philosophy and/or theoretical framework, the documentation system and the record keeping policy framework applicable at a specific institution (Hitchins, 2004:301-307). The most common record keeping approaches used to record patient assessments, planning, care and evaluations are:

- A systems approach, where nurses utilise the body systems as a minimum data set;
- A problem based approach, where nurses utilise either potential or actual patient problems or needs as the minimum data set; and
- An activities of daily living (ADL) approach, where maintaining a safe environment, communication, breathing, eating and drinking, elimination, washing and dressing, controlling temperature, mobilisation, working and

playing, expressing sexuality, sleep, and death and dying are used as the minimum data set (Hitchins, 2004:301-307).

Since the adoption of the Nursing Process, various documentation systems have been developed, catering for a wide variety of disciplines (Table 2.4).

TABLE 2.4: A summary of various documentation system used in nursing

Documentation system	***Main characteristic(s) of system***	***Most important forms / documents utilised***
Narrative charting	Traditional story format. Describes the patient's status, interventions, treatment and responses.	Progress and Evaluation Report.
Source orientated (S.O.) charting	Narrative charting by multi-disciplinary team members on separate records	Discipline specific Progress and Evaluation Report.
Problem-orientated Medical Record (POMR) charting, incorporating the formats:	Focuses on patient problems. Based on of a structured and logical format.	Nursing history; Physical assessment; Laboratory result; Problem list; Nursing care plans; Progress and Evaluation Report; Flow sheets; Discharge summary.
• SOAP	• Subjective data, Objective data, Assessment and Plan	
• SOAPIE	• Subjective data, Objective data, Assessment, Plan, Intervention, and Evaluation	
• SOAPIER	• Subjective data, Objective data, Assessment, Plan, Intervention, Evaluation and Revision	
Problem-orientated Record (POR)	Modified POMR charting focussing on actual patient problems, needs and or activities	
Problem, intervention, evaluation (PIE) charting	Ongoing nursing care plan incorporated into daily documentation, integrated with flow sheets and progress notes	Assessment flow sheet; Progress and Evaluation Report.
Focus charting	Identifies and organises narrative documentation according to data, action and response. Addresses concerns and problems.	Columnar format within the progress notes.
Charting by exception (CBE)	Only exceptions to pre-established norms are recorded.	Flow sheets; Reference documentation (nursing care plans).
Case Management Process	Critical care pathways are used to meet the patient's specific needs resulting in a case specific management plan.	Daily notes; Assessment documentation; Nursing care plans; Intervention outcome; Teaching- and Discharge planning.
Computerised documentation system	Provides clinical, administrative and regulatory information Bed-side or portable computers used.	Not applicable.
Point-of-Care system		
(Adapted from Hitchins, 2004:301-307)		

Internationally there is a trend favouring computerised documentation systems. Reports show that computerisation saves time, increases legibility and accuracy, facilitates statistical data analysis, enhances the utilisation of the nursing process, improves critical thinking and decision making and supports multidisciplinary team cooperation. However, it is resource intensive and ethical and legal issues have

been identified, specifically related to confidentiality, sharing of access passwords and questions on who should have access to the records (Hitchins, 2004:304-305).

A Cochrane systematic review on nursing records which compared computerised records with paper-based systems concluded that it appears that computerised systems do not always deliver the expected benefits (Urquhart & Currell, 2005:33). In South Africa computerisation of nursing records is not yet a widespread practice reality as only the Chief Albert Luthulie Hospital in the KwaZulu-Natal Province has implemented such a system. For the purpose of this study, literature referring to computerisation of record keeping has not been explored in any depth.

Regardless of the paper-based documentation system or form in use, reported problem areas and barriers to effective record keeping include:

- Repetition of information that hampers effective record keeping and contributes to incompleteness of, and inaccuracy in recorded information which is time consuming (Cheevakasemsook et al., 2006:368-370; Howse & Bailey, 1992:375; Martin et al., 1999:348; Tapp, 1990:236-237). An analysis, by the researcher, of an information map included in Tapp's study (1990:237), shows that on average, twenty-nine pieces of information (for example vital signs, allergies, intravenous fluid volumes) had to be recorded in eleven different places, with a range of four to fifteen places, in this way adding to the lack of time burden.

- Incomplete and inappropriate charting, when the nursing process is implemented inconsistently and incorrectly or applied irrelevantly. Inappropriately recorded data not related to the patient's condition undermines continuity in care and limits effective decision making. Documentation audit results show that incomplete information in nursing documents can be as high as 60% (Cheevakasemsook et al., 2006:369-370; Martin et al., 1999:348).

- Negative perceptions regarding certain documents and/or record keeping, specifically nursing documents such as incident reports which are often associated with punitive actions and negative implications. The negative perception and questions about the credibility of documents is enhanced when documents are used by nurses only, or because of their reported limited use by other nurses and health care professionals (Howse & Bailey, 1999:376). This is in stark contrast to a finding by Björvell et al. (2003:213) where *"[a] large number of the nurses believed that other professionals had an interest in nursing documentation…"* Furthermore, nurses perceive record keeping as secondary to direct patient care, confirmed by the

research finding that direct patient care is recorded less that 20% of the time. Although more emphasis is placed on initial patient assessments, the recording of interventions performed and the outcomes of care delivered are of lesser importance, especially in long-term facilities (Howse & Bailey, 1992:376; Kärkkäinen & Eriksson, 2005:206; Martin et al., 1999:349; Pelletier et al., 2005:43-44; Tapp, 1990:237).

2.5.4 Inadequate record keeping related knowledge

There is a correlation between length of time following completion of training and a reluctance to keep records. The more time that has lapsed, the least likely nurses are to keep adequate records, attributed to a lack of current knowledge regarding nursing practice, nursing process related terminology and record keeping. Limited competence, motivation and confidence results in nurses being unsure of what to record and then either record nothing or repeat what others have recorded previously. The lack of knowledge and skills is exacerbated by the fact that very little support or training in this regard is available after completion of training (Cheevakasemsook et al., 2006:370-371; Darmer et al., 2004:330; Tapp, 1990:236). On the contrary, Björvell et al. (2003:213) found that the majority of RNs included in their comparative descriptive study believed that they had sufficient knowledge regarding record keeping. The researchers postulated that this could be attributed to the fact that all participants had some basic record keeping training as part of the study.

2.5.5 Insufficient involvement of nursing management

Managing the nursing environment entails planning, organising, leading, staffing and control with the aim of providing support, guidance and adequate resources. The hierarchical nature of the nursing profession seeks to facilitate the achievement of this aim (Koch, 1996:82; Naudé, 2001:133).

Research results confirm that if nurses are not kept updated regarding what is expected of them as far as record keeping is concerned, their record keeping practices deteriorate. Poor record keeping practices, coupled to a lack of supervision, further impacts negatively on their record keeping performance in the practice setting (Björvell et al., 2002:39; Björvell et al., 2003:213; Cheevakasemsook et al., 2006:371; Darmer, Ankersen, Nielsen, Landberger, Lippert & Egerod, 2006:532, 533; Griffiths, Debbage & Smith, 2007:1325; Tapp, 1990:236, 238)

Regular record keeping and nursing care audits are perceived as being valuable to facilitate critical reflection on nursing practice, while positive reinforcement by nurse

managers and supervisors is seen as a facilitator to effective record keeping. Intervention studies have shown that regular record keeping and care audits have a significantly positive impact on record keeping practices, even in the medium and long-term. These studies all had specific developmental and in-service training goals, confirming the value of on-going professional development (Björvell et al., 2002:39; Cheevakasemsook et al., 2006:371; Darmer et al., 2006:528; Griffiths et al., 2007:1325; Tapp, 1990:238).

2.6 Factors that facilitate effective record keeping

A qualitative, descriptive study by Tapp (1990:229-240) explored the concept of factors that facilitate effective recording practices in nursing. Participants in the study by Tapp reported the following 'facilitators' for effective record keeping:

- Flow charts save time and are considered to be convenient, accessible and easy to use and therefore are more likely to be used after an intervention has been completed, confirmed by Deane et al. (1986:176) as far back as 1986.
- Documentation based on a theoretical nursing framework, coupled to standardised terminology and structure, facilitates effortless, efficient and coordinated record keeping of nursing care, especially if accompanied by proper orientation to its utilisation.
- The involvement of Management and supervisors facilitate effective record keeping through positive reinforcement, also confirmed by Björvell et al. (2003:213), Cheevakasemsook et al. (2006:371) and Darmer et al. (2006:532, 533).
- Patient related aspects concerning changes in the condition of the patient and/or the presence of *"interesting or gossipy"* information (for example non-compliance, non-cooperation, refusal of treatment) were identified as more likely to be recorded.

A review of the barriers and facilitators to effective record keeping provides useful insight into possible problem areas in record keeping and this aspect is explored next.

2.7 Identified problem areas in record keeping

In addition to formulating the three general standards for nursing documentation, Uys and Booyens (1989:29-31) developed and validated an audit tool, the Nursing Record Standard Sheet (NRSS). The NRSS was used in a subsequent study to determine the quality of nursing documentation at seven Government and two Private hospitals located in two South African provinces (Booyens & Uys, 1989:26-

28). The researcher compared the identified problem areas in record keeping in the South African study with audit related international studies (Table 2.5).

TABLE 2.5: A comparison of South African and international audit related studies on record keeping*

Standards & criteria	***% Non-compliance per study***					
	Booyens & Uys (1998:26-28)	*Voutilainen, Isola & Muurinen (2004:72-81)*	*Kärkkäinen & Eriksson (2003:198-205)*	*Björvell et al. (2002:34-42)*	*Martin et al. (1999:345-352)*	*Griffiths et al. (2007:1324-1327)*
STANDARD 1: Records must comply with legal requirements						
• The record must be kept in permanent form.	2%	-	-	-	-	-
• Entries must be dated.	10%	-	-	-	-	5%
• The time must be indicated when an entry is made.	10%	48%	-	-	-	10%
• Entries must be legible.	0%	-	-	37%	2%	-
• Entries must be signed.	5%	-	-	23%	-	-
• A legal designation must be inserted with each entry.	65%	-	-	-	-	-
• Corrections must be done correctly/legally.	80%	-	-	-	-	-
• Only approved abbreviations must be used.	53%	-	-	-	-	-
• All records must be identified.	26%	-	-	-	-	-
• Records must be kept confidential.	1%	-	-	-	-	-
• Life-support apparatuses must be identified in nursing records.	60%	-	-	-	-	-
• Entries must be made timeously (not before an intervention takes place).	1%	-	-	-	-	-
• Baseline admission data must be recorded.	33%	-	-	-	-	-
STANDARD 2: Records must be a complete reflection of the patient's condition and the nursing care rendered.						
• The chronic medication of a patient must be recorded on admission.	28%	-	33%	23%	-	-
• The nursing documentation must reflect the medical diagnosis of the patient, on admission	18%	-	-	-	-	-
• The nursing documentation must reflect the presence of chronic medical conditions, on admission.	64%	-	33%	23%	-	-
• The basic needs of the patient are recorded on admission.	44%	-	-	43%	-	-
• An assessment of the patient's basic needs must be done within 24-hours after admission.	58%	-	-	-	51%	-
• The patient's problems and or needs must be clearly identified.	26%	-	-	63%	4%	20%
• Nursing care instructions must be recorded.	20%	-	-	53%	31%	-
• The physician's treatment plan must be reflected in the nursing records.	13%	-	-	-	-	-
• Changes in the patient's condition and/or abnormalities observed must be recorded in the Progress Report.	63%	70%	-	-	-	-
• Visits by multi-disciplinary health team members must be reflected in the nursing records.	76%	-	-	-	-	

Standards & criteria	% Non-compliance per study					
	Booyens & Uys (1998:26-28)	*Voutilainen, Isola & Muurinen (2004:72-81)*	*Kärkkäinen & Eriksson (2003:198-205)*	*Björvell et al. (2002:34-42)*	*Martin et al. (1999:345-352)*	*Grifiths et al. (2007:1324-1327)*
• Patient movements (for investigations or treatment) out of the nursing unit must be recorded.	53%	-	-	-	-	-
• New, or changed nursing actions, must be reflected in the nursing records.	46%	-	18%	-	-	-
• Specific nursing actions completed, must be recorded.	43%	54%	-	-	-	-
• The administration of medication must be recorded.	49%	-	-	-	-	-
• The patient's need for, and reaction to non-chronic medication and/or treatment must be recorded.	87%	60%		-	27%	-
• The patient's condition on discharge, in relation to his/her reason for admission, must be recorded.	80%	-	-	47%	-	-
• Referrals for further care must be reflected in discharge nursing documentation.	89%	-	-	-	-	-
STANDARD 3: Records must be a reflection of reality.						
• Scientific terms must be used.	50%	-	-	-	-	-
• The nursing records must address the central problems of the patient.	28%	-	-	73%	32%	-
• The nursing records must be a chronological report, reflecting a sequence of events.	22%	-	-	-	-	-
• False statements must not be recorded.	6%	-	-	-	-	-

(Björvell et al., 2002:34-42; Booyens & Uys, 1998:26-28; Grifiths et al., 2007:1324-1327; Kärkkäinen & Eriksson, 2003:198-205; Martin et al., 1999:345-352; Voutilainen, Isola & Muurinen, 2004:72-81)

*Data table compiled by the researcher from the best available evidence on record keeping research audits.

Different research methodologies and audit instruments were used in the referenced studies, therefore Table 2.5 could not be populated completely, but data indicate that at least some problem areas are fairly widespread.

The major South African record keeping problem areas are summarised in Table 2.6, based on the researchers analysis of Booyens and Uys' (1989:26-28) findings and applying an arbitrarily set compliance level of 50% for meeting criteria.

TABLE 2.6: South African record keeping problem areas in nursing based on the findings of Booyens and Uys' study (1989:26-28) and determined by an arbitrarily set non-compliance level of 50%

STANDARD 1	***STANDARD 2***	***STANDARD 3***
Records must comply with legal requirements	***Records must be a complete reflection of the patient's condition and the nursing care rendered***	***Records must be a reflection of reality***
• Legal designation when signing entries or documents not included; • Corrections not done correctly; • The use of unapproved abbreviations; • The non-identification of apparatuses being used in patient care.	• Chronic medical conditions not recorded on admission; • Basic needs of patients not assessed within 24-hours of admission; • Changes in the patient's condition and/or abnormalities observed, not reported in the Progress Report; • Visits by multi-disciplinary team members not recorded consistently; • Patient movements in/out of the nursing unit not recorded; • The reaction of patients to medication administration, not recorded; • The patient's condition on discharge, in relation to the reason for admission, not recorded or assessed; • Referral on discharge, and follow-up requirements not recorded.	• Scientific terminology is used inconsistently.

In 1989 the average score indicating the quality of nursing records reported by Booyens and Uys (1989:31) was 65%, with a range of 32% to 92%. In 2003, using the NRSS in a Free State Provincial Hospital no score lower than 56% was found. Yet another survey into the quality of nursing care in the KwaZulu Natal Province, also using the NRSS, found the quality of nursing records to be "extremely low" at 11%. This study was conducted in government hospitals and clinics (Uys & Naidoo, 2004:7).

The conclusion by Booyens and Uys (1989:28) that *"there are still many areas in nursing documentation which need to be improved"* appears to hold true two decades later and aspects of this concern were explored in the present study.

2.8 Chapter summary

This chapter provided an overview of the literature pertaining to manual nursing record keeping systems in hospital settings. The Nursing Process was reviewed as it is considered to be foundational to effective record keeping. The legal requirements applicable to record keeping were considered, as were record keeping standards and guidelines. In conclusion, the barriers, facilitators and problem areas in record keeping were identified in the literature.

Record keeping as a research topic has been the focus of many international studies. The research-related articles that were reviewed dealt mainly with the quality of record keeping – standards, guidelines, barriers, facilitators, environmental challenges and problem areas. Although some of these studies reported nurses' attitudes towards, knowledge of and record keeping practices, none of these aspects were the main focus of the studies. To some extent, the question, "what are the problem areas in record keeping?" has been answered in the reviewed literature. The question that still remains is "why do these problems persist?"

The aim of this study of limited scope was to describe local nurses' attitudes towards, knowledge of and record keeping practice behaviours in an effort to bridge a gap that currently exists in the literature. The next chapter provides an overview of the research methodology applied in this study.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter describes the study design and research process employed in this study including the research setting, study population, sample size estimation and sampling procedures, data collection methods and tools, measures to ensure scientific rigour, data management and statistical tests for data analysis. The chapter concludes with ethical considerations addressed prior to and during the study.

The choice of methodology is influenced by the subject matter being researched and an appropriate methodology ensures scientific rigour by guiding the researcher through the phases of planning, structuring and executing the research project (Burns & Grove, 2001:26; Fouché & Delport, 2005b:73).

3.2 Research design

A quantitative descriptive cross-sectional survey was used, indicating a non-experimental research design that allows the researcher to investigate a phenomenon as it occurs naturally (Uys & Basson, 1991:48-49).

Burns and Grove (2007:24) define quantitative research as *"a formal, objective, rigorous, systematic process for generating information about the world … conducted to describe new situations, events or concepts..."* Mouton and Marais (1990:155, 160, 163) and Fortune and Reid (in Fouché & Delport, 2005b:73) characterise quantitative research as a formalised and specifically controlled approach where the researcher remains an objective observer while gathering data. Data collection procedures and methods of analysis are structured in such a way that statistical quantification aims to show the variable distribution, whilst allowing for the verification of either an association or difference between variables. This study described the latter.

Grimes and Schulz (2002:145, 148) citing Hulley, Cummings, Browner, Grady, Hearst and Newman, describe descriptive studies as *"... the first scientific toe in the water in new areas of inquiry"* and *"a springboard into more rigorous studies with comparison groups".* Three important uses of descriptive studies include trend analysis, health-care planning and hypotheses generation but a dangerous pitfall is to draw causal inferences when none is possible (Grimes & Schulz, 2002:145, 147).

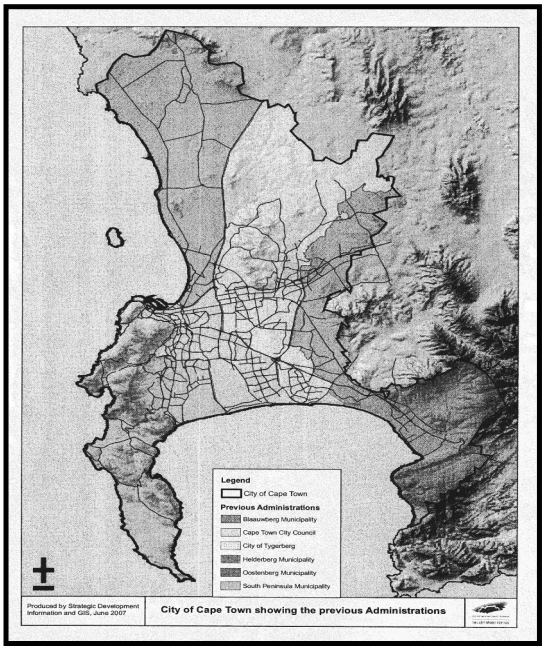
An advantage of descriptive studies is that data are available, therefore inexpensive and efficient to use, and can be obtained from smaller populations (Grimes & Schulz, 2002:146, 147). Descriptive research often aims to clarify the specific details of a situation, social setting or relationship by focussing on the "how", "why" and "who" (Fouché & De Vos, 2005b:106; Neuman, 1997:20, 228) as well as the "what", "when", "where" and a sixth implicit question "so what" (Grimes & Schulz, 2002:145).

The cross-sectional survey method involves the collection of data at one point in time, specifically *"appropriate for describing the status of phenomena or relationships amongst phenomena at a fixed point"* (Polit, Beck & Hungler, 2001:183). While data for independent and dependent variables can be collected simultaneously, the independent variable usually reflects behaviours or results as it occurred in the past (Grimes & Schulz, 2002:146).

According to Neuman (1997:228) a survey is the ideal method to use when determining behaviour, attitude and knowledge, especially if it is self-reported beliefs or behaviours. The empirical, primary and numeric data that are gathered aid statistical analysis (Mouton, 2001:152).

3.3 Setting

The study was conducted at six hospitals located in the Cape Town Metropole, situated in the Western Cape, which is one of nine provinces in the Republic of South Africa. The Cape Town Metropole covers a total area of 2461 km^2, with a coastline of 294 km. In 2007, the projected population of this area comprised 3.27 million people, living in an estimated 904000 households. The Gross Domestic Product in 2006 was R123.6 billion and the unemployment rate, 15.11%. The population grew by 1.61% per annum in 2006. According to statistics released in 2005, the prevalence (according to the Antenatal Survey) of the Human Immunodeficiency Virus (HIV) was 15.7% and the incidence



(City of Cape Town, 2007)

FIGURE 3.1: A map indicating the boundaries of the Cape Town Metropole

of Tuberculosis (TB), 26754 cases per year, with 2122 deaths (City of Cape Town, 2007).

Three of the hospitals included in the study are classified as tertiary level Government hospitals – two under the administration of the Provincial Government of the Western Cape, and the third under the administration of the Department of Defence (South African Military Health Service). The other three hospitals are privately owned and operated. The inclusion of these hospitals was dependent on obtaining permission from the relevant hospital authorities for access and this was obtained before the study commenced (Appendix D). For the purpose of this study, and to maintain confidentiality, each hospital was assigned a random number known only to the researcher. These numbers are used throughout when referring to the hospitals (Table 3.1).

TABLE 3.1: An overview of hospital information, per institution, obtained during the preparation phase

Information category	***Hospital***					
	Hospital 1	***Hospital 2***	***Hospital 3***	***Hospital 4***	***Hospital 5***	***Hospital 6***
Administration	Gov	Gov	Gov	Private	Private	Private
Classification	Tertiary	Tertiary	Tertiary	N/A	N/A	N/A
Number of beds in use	906	288	185	238	153	124
Permanently employed Nursing personnel	1 421	476	156	212	220	143
LEGEND: Gov = Government, N/A = Not applicable.						
(Hospital & Nursing Yearbook, 2007:132, 134, 135 & 137).						

Purposive and convenience sampling of these six hospitals was guided by their relative close proximity to each other that facilitated ease of access for the researcher and ensured sufficient data diversity across the healthcare service delivery spectrum.

3.4 Study population

The study population is *"a subset of the target population from whom the sample is taken"* (Procter & Allan, 2006:174). The target population in this study was all Registered and Enrolled Nurses and Enrolled Nursing Auxiliaries, working in public and private hospitals within the Cape Town Metropole. The study population comprised Registered and Enrolled Nurses, and Enrolled Nursing Auxiliaries employed at the purposively selected public and private hospitals in the Cape Town Metropole.

3.5 Inclusion criteria

Inclusion in the study was based on:

- The location of the hospital: The hospitals had to be located in the Cape Town Metropolitan area of which three hospitals had to be Government and three Private.
- The professional qualifications of the participants: The respondents had to be nurses, registered or enrolled in one of the following SANC categories: RN, EN or ENA
- The job description of the participants: Nurses who:
    - provide direct patient care in ward or units where patients are admitted for a period of six hours or longer;
    - were the incumbent of a Nursing Unit Manager's[2] post[3];
    - were employed in a permanent or part-time capacity (through a nursing agency), on day or night duty.

3.6 Exclusion criteria

The following exclusion criteria were applied:

- Nurse learners and care workers.
- Nurses not involved in direct patient care in a ward or unit, for example those working in outpatient departments, clinics, operating theatres or similar settings where patients are admitted for less than six hours.
- Nurse Educators, Clinical Facilitators and Nurse Managers, not in a Nursing Unit Manager's post.

3.7 Preparations for determining the sample size and sampling

Once ethical approval was granted (Appendix A), authorisation was obtained from the hospital authorities (Appendix B). Several directorates had to authorise the inclusion of the military hospital in the study (obtained after 89 days) and there were stricter confidentiality requirements than for the other sampled hospitals. The other institutions authorised inclusion within one to two days with the exception of one hospital (granted after 29 days).

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[2] For the sake of uniformity, these designations will be used throughout this report, even though it was amended for nurse managers in the Public Service from July 2007.

[3] Although Nursing Unit Managers are middle managers, they were included in the study as they, as ward managers, provide guidance to nursing personnel under their supervision.

A summary of the preparatory, sampling and data gathering activities that occurred over a four month period is given in Table 3.2, followed by a detailed description of some of the procedures followed.

TABLE 3.2: Summary table for tracking the preparatory, sampling and data gathering procedures

	Progression per hospital					
	Hospital 1	***Hospital 2***	***Hospital 3***	***Hospital 4***	***Hospital 5***	***Hospital 6***
Authority for access requested	2008-08-13	2008-08-13	2008-06-19	2008-06-04	2008-06-04	2008-06-04
Authority for access granted	2008-08-15	2008-09-12	2008-09-23	2008-06-11	2008-06-06	2008-06-05
Date of initial meeting	2008-08-21	2008-09-26	2008-09-29	2008-06-19	2008-06-23	2008-06-11
Sampling date	2008-08-28	2008-10-02	2008-09-30	2008-08-04	2008-08-22	2008-07-09
Questionnaire delivery date	2008-08-28	2008-10-02	2008-10-01	2008-08-05	2008-08-22	2008-07-09
Data gathering start date	2008-09-01	2008-10-02	2008-10-01	2008-08-06	2008-08-25	2008-07-09
Data gathering end date	2008-09-12	2008-10-16	2008-10-15	2008-08-20	2008-09-05	2008-07-23
Questionnaire collection date	2008-09-15	2008-10-17	2008-10-16	2008-08-21	2008-09-08	2008-07-24
Total period (in days)	33	62	119	78	96	50

During the preparatory, sampling and data gathering period:

- Direct access to each hospital was personally negotiated with the nursing management teams who were briefed regarding the study and provided with a summary of the study and a sample questionnaire. Sampling methods were explained, issues of confidentiality were discussed and questions were answered. Nurse Managers at five hospitals undertook to introduce the research to their respective management teams, but at Hospital 3 this was done by the researcher as requested by the Deputy Director of Nursing.
- The researcher kept notes of these discussions on an interview schedule (Appendix E), to ensure that the same points were covered at each meeting.
- At each hospital a Research Contact Person who was willing to participate in the study for no remuneration, was identified by nurse managers to liaise between the researcher and the respondents. The Research Contact Person specifically had to coordinate the distribution and collection of the

questionnaires, act as 'on-the-spot' problem solving agent and had to provide the researcher with study-related hospital information. They were provided with the same documents as the management teams but also with specific guidelines for the sampling method (Appendix F) and the contact details of the researcher. The purpose of the sampling guidelines was to ensure consistent application of the sampling method at each hospital.

- Sampling of participants was done by the Researcher in the presence of the Research Contact Person or nursing management representative to ensure confidentiality. Details of the sampling method follow.

3.8 Sample size and sampling method

The sample represented the target and study population (Arkava & Lane in Strydom, 2005a:194) comprising Registered and Enrolled Nurses, and Enrolled Nursing Auxiliaries employed at the purposively selected Government and Private hospitals in the Cape Town Metropole for the purpose of describing nurses' self-reported attitudes, knowledge and practice behaviours, without including the total population. Random selection ensures that each member of each stratum has an equal chance of being included in the study, thus limiting bias (Strydom, 2005a:196-197). Stratified random sampling is suitable for heterogeneous populations such as the nurse categories in this study, as it allows for these to be subdivided into subgroups, or strata, according to the actual numbers in the target population. This enhances validity, representation and allows for more general conclusions (Strydom, 2005a:200).

Sampling ensures study feasibility, as inclusion of the total population could make the study too big and too expensive to manage (depending on the population size), and ensures cost-effective utilisation of financial and other resources, including time and effort (Neuman, 1997:201; Strydom, 2005a:194).

3.8.1 Sample size calculation and determination

Sample size refers to the actual number of participants that will be included in the study and the researcher will base his predictions, findings and/or conclusions on the data gathered from the sample. The sample size could have an impact on the significance of statistical tests, rendering it insensitive for smaller sample sizes or overly sensitive for larger sample sizes (Strydom, 2005a:195).

For the purpose of this study, the guidelines for sampling by Stoker (as cited by Strydom, 2005a:196) are described (Table 3.3).

TABLE 3.3: Guidelines for sample size determination

Population size	*Suggested sample size in percentage*	*Number of respondents*
1 – 20	100%	1 – 20
21 – 30	80%	17 – 24
31 – 50	64%	20 – 32
51 – 100	45%	23 – 45
101 – 200	32%	32 – 64
201 – 500	20%	40 – 100
501 – 1000	14%	70 – 140
1001 – 10 000	4.5%	45 – 450
10 001 – 100 000	2%	200 – 2 000
100 001 – 200 000	1%	1 000 – 2 000
(Stoker, as cited by Strydom, 2005a:196)		

If Hospital X had 735 eligible nurses, the sample size would be 103 (735 x 14%). This sample is then stratified to reflect the actual number of RNs, ENs and ENAs employed, therefore, if 48% of the nurses employed at Hospital X were RNs, 32% ENs and 20% ENAs, the stratified sample size is calculated as follows:

- Registered Nurses: 103 x 48% = 49 selected randomly;
- Enrolled Nurses: 103 x 32% = 33 selected randomly;
- Enrolled Nursing Auxiliaries: 103 x 20% = 21 selected randomly.

Using Stoker's guidelines, the study population sample size was calculated (Table 3.4) after applying the in/exclusion criteria, indicating the stratified sample size per institution.

TABLE 3.4: Data for the stratified sample size per institution

	Nurse Category	(A) No. of nursing personnel (study population)	(B) No. of nursing personnel excluded	(C) No. of nursing personnel for inclusion in the study (A – B)	(D) Sample size according to Stoker (C x D)	(E) Stratification % (C ÷ G[C])	(F) No. of nursing personnel included (sample size) (G[D] x E)
Hospital 1	RNs	650	346	304	14%	44%	43
	ENs	316	109	207		30%	30
	ENAs	333	146	187		26%	25
	Other	122	122	0		0%	0
	(G) TOTAL	**1421**	**723**	**698**	**98**	**100%**	**98**
Hospital 2	RNs	217	55	162	20%	42%	32
	ENs	79	11	68		18%	14
	ENAs	180	28	152		40%	30
	Other	0	0	0		0%	0
	(G) TOTAL	**476**	**94**	**382**	**76**	**100%**	**76**
Hospital 3	RNs	96	33	63	32%	57%	20
	ENs	53	11	42		38%	13
	ENAs	7	2	5		5%	2
	Other	0	0	0		0%	0
	(G) TOTAL	**156**	**46**	**110**	**35**	**100%**	**35**
Hospital 4	RNs	107	12	95	32%	51%	31
	ENs	43	11	32		17%	10
	ENAs	82	3	59		32%	60
	Other	0	0	0		0%	0
	(G) TOTAL	**212**	**26**	**186**	**60**	**100%**	**60**
Hospital 5	RNs	110	27	83	32%	59%	27
	ENs	35	12	23		16%	7
	ENAs	48	14	34		25%	11
	Other	27	27	0		0%	0
	(G) TOTAL	**220**	**80**	**140**	**45**	**100%**	**45**
Hospital 6	RNs	39	13	26	45%	30%	12
	ENs	27	3	24		27%	11
	ENAs	46	8	38		43%	17
	Other	31	31	0		0%	0
	(G) TOTAL	**143**	**55**	**88**	**40**	**100%**	**40**
GRAND TOTAL		**2628**	**1024**	**1604**	**354**	**100%**	**354**

LEGEND: RNs = Registered Nurses; ENs = Enrolled Nurses; ENAs = Enrolled Nursing Auxiliaries; OTHER = Student nurses, Pupil nurses and Care Workers.

Stratification based on the guidelines by Stoker (cited by Strydom, 2005a:196)

Once the sample size has been calculated, random sampling of potential participants followed.

3.8.2 Random sampling method

Random sampling ensures that each member of each stratum has an equal chance of being included in the study, thus limiting bias (Strydom, 2005a:196-197). Using Strydom's approach (2005a: 197-198) for drawing a random sample, the following steps were followed at each hospital:

- inclusion and exclusion criteria were applied to select the study population;
- each potential study participant was assigned a chronological number;
- the Research Contact Person closed her eyes and pointed a pencil anywhere on the random number table, taken as the starting number for selecting the study participants until the pre-determined number was reached.

On conclusion of this process data collection could commence.

3.9 Data collection

This section describes the development of the measuring instrument for collecting data for interpretation and the method of data collection. The purpose of the measuring instrument is to ensure that *"…numbers are assigned to objects in a consistent manner…"* towards achieving *"…objective scientific knowledge that can enhance the professional knowledge base with empirical evidence…"* (Delport, 2005:159-160).

3.9.1 Data collection tool

The data collection tool must facilitate the gathering of sufficient data that can be used for deductive interpretation. In this study a questionnaire (Appendix C) was developed for data collection, defined as *"a set of questions on a form which is completed by the respondents in respect of a research project …especially [where] the researcher is interested in determining the extent to which respondents hold a particular attitude or perspective"* (Delport, 2005:166).

The development of the three-part questionnaire was guided by the aims and objectives of the study and an overview of the available literature to ensure content validity (Colosi, 2006:1). It consisted of 65 questions. To provide local relevance, the study of Uys and Booyens (1989:29-31) was used as a conceptual framework for question formulation. The NRSS (Booyens & Uys, 1989:26-28), national and international record keeping audit criteria, specific guidelines and reported barriers to effective record keeping provided further local and international context and relevance. The questions included in the questionnaire were formulated to achieve the research objectives (Table 3.5).

TABLE 3.5: An analysis of the questionnaire by objective

Objective	*Section(s)*	*Question(s)*
1.9.1 To describe and compare the demographic and professional profile characteristics of the respondents.	A and B	1 to 9
1.9.2 To describe and compare respondents' self-reported attitude towards, knowledge of and behaviour relative to record keeping, against predetermined measurement scales.	C	10 to 28 relative to attitude. 29 to 49 & 64 to 65 relative to knowledge. 50 and 52 to 63 relative to practice behaviour.
1.9.3 To establish whether there is a significant association between selected variables: nurse category, gender, hospital sector, years of experience, day/night shift and practice discipline and respondents' self-reported: 1.9.3.1 attitude towards record keeping; 1.9.3.2 knowledge of record keeping; and 1.9.3.3 record keeping practice behaviour.	A, B and C	1 to 9 10 to 28 relative to attitude. 29 to 49 and 64 to 65 related to knowledge. 50 and 52 to 63 related to practice behaviour.
1.9.4 To describe selected self-reported practice behaviours relative to record keeping: management support, approaches to record keeping, methods of correcting mistakes and making late entries.	C	50, 52 to 56 and 64 to 65
1.9.5 To determine respondents' ranking of published barriers to effective record keeping for a local context.	C	51

An analysis of the types of questions included in the questionnaire is presented in Table 3.6.

TABLE 3.6: An analysis of the types of questions included in the questionnaire

Section	*Type of question*		
	Close-ended, pre-coded	*Open ended*	*Partially open ended*
A and B	Dichotomous: • Question 1: Gender • Question 8: Shift work • Question 9: Employment status Multiple choice questions: • Question 3: SANC registration/enrolment category • Question 4: Place of employment • Question 6: Years of experience	Fill-in: • Question 2: Age in years, to facilitate the calculation of an accurate mean age	Multiple choice questions: • Question 5: Clinical discipline • Question 7: Functional position
C	Likert scale statements: • Question 10 to 28: Attitude • Question 29 to 49: Knowledge • Question 52 to 63: Practice behaviour Itemised rating scale question: • Question 51: Ranking ten listed barriers to effective record keeping. Checklist type questions: • Question 64: Practice behaviour checklist concerning the correction of mistakes.	None	Checklist type questions: • Question 50 and 65: Practice behaviour checklists or examples provided, including an open ended option for additional information if required.

The questions in Section C of the questionnaire were formulated to measure self-reported attitudes, knowledge and practice behaviour consisting of researcher constructed Likert scales.

3.9.1.1 Attitude measuring questions

The attitude measuring questions (10 to 28) in Section C were formulated as statements where the respondents had to indicate their level of agreement or disagreement on a 5-point Likert scale (Table 3.7). The attitude measuring statements began with the guiding statement, *"I believe that…"*, to encourage self-reporting.

3.9.1.2 Knowledge measuring questions

The knowledge measuring questions (29 to 49) in Section C were formulated as 'True' or 'False' statements (Table 3.7). The knowledge related statements began with the guiding statement, *"To my knowledge…"*, to personalise the self-reported knowledge aspect.

3.9.1.3 Questions about self-reported practice behaviours

In determining self-reported practice behaviours of the respondents (Section C, questions 50 to 65):

- Questions 52 to 63 were formulated as statements to indicate whether this was typical of the respondents' daily practice behaviour or experience (Table 3.7). The statements commenced with the phrase, *"In my daily work…"*, to encourage self-reporting.
- Questions 50, 64 and 65 were checklist type questions, often used to describe a situation (Delport, 2005:179). The options prompted the respondent to choose one or more typical practice(s) employed in daily work. An open-ended option was included for additional information if the options provided were not sufficient. The options were pre-coded for data capturing purposes.
- Question 51 was an itemised rating scale question consisting of ten listed barriers to effective record keeping, which the respondents had to rank from 1 to 10, with 1 representing the most influential barrier and 10 the least influential barrier. Ordinal scale type questions require respondents to have some inherent knowledge and experience (Delport, 2005:182-183).

3.9.1.4 The use of Likert scales

Likert scales are often used to measure attitude (Colosi, 2006:3; Delport, 2005:175-177; Neuman, 1997:159-160) and agreement or disagreement with statements. Neuman (1997:159) confirms that four to eight categories are usually sufficient for this type of measurement, as long as an even balance between positive and negative options is maintained. In section C of the questionnaire, ten of the nineteen attitude measuring questions (10, 12, 14, 15, 17, 18, 20, 23, 25, and 28) were worded positively and the remaining nine questions (11, 13, 16, 19, 21, 22, 24, 26 and 27), were worded negatively. A 'neutral' category *("Uncertain" / "Unsure")* was included in all the Likert scale and applicable numerical rating scale questions (10 to 28, 29 to 49 and 52 to 56) to prevent respondents from making a forced choice when a statement did not apply to them. Including a 'neutral' category could potentially lead to central response bias, where respondents tend to choose the central option (Neuman, 1997:242). In an effort to counteract this tendency, a transitional statement was included encouraging respondents to choose the neutral statement only if they did not hold a certain belief, had no knowledge of, or experiences regarding a specific statement. Including the neutral category therefore facilitates a true reflection of attitude, knowledge and practice behaviour while a

neutral attitude and no knowledge or practice experience can also be measured (Colosi, 2006:4; Neuman, 1997:242, 244).

The ordinal level Likert scale and numerical rating scale responses were allocated coding scores (for example 'Strongly Agree" = 4). Statistical tests could be employed to calculate the mean scores of response rates to give an indication of the attitude, knowledge level or current practice behaviours. The respondents were blinded to the coding scores (described in Table 3.7) as these were only required during data capturing (Colosi, 2006:3; Delport, 2005:175-177; Neuman, 1997:159, 160).

To prevent response set or bias, where the respondent answers all the statements in the same way, some statements were worded positively and others negatively, without following a particular pattern. In theory, this would force the respondent to read and interpret each statement individually before providing an opinion (Neuman, 1997:160-161). The coding scores (Table 3.7) were reversed when the statements were worded negatively (Polit et al., 2001:271).

TABLE 3.7: An analysis of the measuring scale, item choices and coding scores with reference to Section C of the questionnaire

Variable measured	*Applicable section and questions*	*Type of scale*	*Scale / item choices*	*Coding scores*	
				Positively worded questions	*Negatively worded questions*
Attitude	Section C, questions 10 – 28	Ordinal level Likert scale	Strongly Agree	4	0
			Agree	3	1
			Uncertain	2	2
			Disagree	1	3
			Strongly Disagree	0	4
Knowledge	Section C, questions 29 – 49	Numerical rating scale	True	1	0
			False	0	1
			Unsure	0	0
Practice behaviour	Section C, questions 52 – 56	Numerical rating scale	Yes	1	0
			No	0	1
			Unsure	0	0
	Section C, questions 57 – 63	Numerical rating scale	Always	2	0
			Sometimes	1	1
			Never	0	2

After construction, the six page self-administered questionnaire was subject to validity, reliability- and pilot testing to ensure scientific rigour.

3.10 Ensuring scientific rigour

Scientific rigour refers to *"the ideas, rules, techniques and approaches"* used by the researcher to ensure that the findings are credible (Neuman, 1997:9). Together with the research process, validity, reliability and pilot testing were some of the methods employed to ensure scientific rigour.

3.10.1 Validity

Validity refers to the fact that the data measurement instrument, in this study a questionnaire, should accurately measure the variables that need to be measured and expressed by means of content-, face-, and construct -validity (Delport, 2005:160-161).

3.10.1.1 Content validity

A measuring instrument has content validity when the topics that are covered are representative of the phenomenon being researched, as determined by the researcher and/or other experts (Delport, 2005:160-161). Neuman (1997:142) describes it as a three step process, consisting of concept definition, obtaining samples from all the areas of the definition and developing indicators that measure all the defined areas.

Before data collection was commenced, content validity of the questionnaire was confirmed through expert analysis, followed by a pilot study.

3.10.1.1.1 Expert panel participants

Two RN experts were purposively selected from one of the participating hospitals – these RNs were excluded during the final participant selection process. The purpose of the expert group was to assess and confirm questionnaire content validity concerning generally accepted record keeping standards, practices and guidelines, and comprised:

- A Clinical Facilitator with extensive experience in nurse education; and
- An Infection Control practitioner with extensive Intensive Care and nurse management experience.

Both of the expert group participants were familiar with expected record keeping practices due to the nature of their work.

3.10.1.1.2 Procedure for establishing content validity of the questionnaire

The experts were provided with the final draft of the questionnaire:

- Photocopied back-to-back; and

- Accompanied by a covering letter, containing:
    - instructions on how to complete the questionnaire;
    - the contact details of the researcher and supervisor;
    - the purpose of the study;
    - a statement regarding voluntary participation;
    - possible risks and benefits of participating in the study;
    - confidentiality and privacy arrangements;
    - reassurance regarding the freedom to withdraw at any time and without penalty;
    - an explanation on methods to be used for disseminating the study results (Hunn, 2006:150, 151; Neuman, 1997:450); and
    - further instructions indicating the number of pages, the approximate time it would take to complete the questionnaire and what to do once the questionnaire was completed (Delport, 2005:170).

The experts were requested to indicate how representative they deemed the questions to be when considering the topic and the concepts of attitude, knowledge and practice behaviour. The experts confirmed content validity as they indicated that questions covered a variety of record keeping aspects while measuring the pre-determined concepts. Although expert confirmation is deemed to be subjective, it remains an integral part of questionnaire construction (Polit et al., 2001:309) and subsequently accepted by the researcher. Once content validity was confirmed, face validity was determined.

3.10.1.2 Face validity

Face validity refers to whether the measuring instrument appears to adequately address the question being posed and whether it measures the question-related aspects sufficiently (Neuman, 1997:142), while also considering aspects such as layout, logical presentation and unambiguous wording (Delport, 2005:161).

When the questionnaire was constructed, every effort was made to ensure that the three section layout of the questionnaire facilitated easy completion, as follows:

- Transitional statements were inserted between sections (Colosi, 2006:4).
- Transitional statements were printed in italics to differentiate these from the questions.
- Care was taken to clearly indicate rating scales on each page; and

- All the questions were numbered (Delport, 2005:170-171).
- The questionnaire was drafted only in English, it being one of the two official languages used in each of the selected hospitals. As the questionnaire is based on nursing nomenclature, it was assumed that all respondents would have language competency to complete the questionnaire unassisted.

In the view of the researcher, face validity of the questionnaire was confirmed, as it appeared to measure record keeping attitudes, knowledge and practice behaviours. The logical, unambiguous and clear layout concerning presentation and wording was assumed through the measures described above, as it would be further examined during the pilot study. Next construct validity was examined.

3.10.1.3 Construct validity

According to Bostwick and Kyte (quoted in Delport, 2005:162), construct validity is concerned with the question: *"What does the instrument mean – what is it in fact measuring, and how and why does it operate the way it does?"* According to Neuman (1997:144) construct validity measures defined indicators, while Murphy-Black (2006:375) describes it as *"the degree to which the questionnaire measures the construct it was designed to measure…"* According to the same author, this is achieved by increasing the number of different questions in the questionnaire, with the provision that they are measuring the same construct.

Validating a questionnaire in terms of construct validity is difficult, as a certain measure of judgement regarding what the questionnaire measures is required. Construct validity is not based on proof, but rather supported by accumulated evidence that supports the application of the instrument as opposed to validating it as such (Polit et al., 2001:310-311).

3.10.1.3.1 Participants in establishing construct validity

A draft questionnaire was presented to six nurses at one hospital included in the study, consisting of:

- Two RNs with a composite of 53 years experience;
- Two ENs with a composite of 16 years experience; and
- Two ENAs with a composite of 21 years experience.

The nurses were excluded during sampling.

3.10.1.3.2 The procedure for establishing the construct validity of the questionnaire

The draft questionnaire had no headings or leading statements and the nurses were asked what three aspects they thought the questionnaire measured. A summary of the key responses is presented in Table 3.8.

TABLE 3.8: A summary of the key responses of the respondents confirming construct validity of the questionnaire

Key responses	*Constructs extrapolated by the Researcher from the key responses*	*Number of responses*
"Record keeping aspects" "Record keeping know-how" "What nurses know about record keeping"	Knowledge	6
"Nurses' beliefs about record keeping" "How nurses feel about record keeping"	Attitude	3
"How nurses keep records" "How record keeping is managed" "What nurses do when keeping records"	Practice / Behaviour	5
"The 'rights' and 'wrongs' of record keeping" "How to keep records"	Knowledge and Practice	4
Total number of responses		**18**

The responses were interpreted by the researcher as referring to 'attitude', 'knowledge' and 'practice behaviour', related to record keeping. The responses confirmed validity of the concepts and constructs (record keeping, attitudes, knowledge and practice behaviour) embedded in the questionnaire, as measure by defined indicators (Likert scales). Subsequently, reliability was examined.

3.10.2 Reliability

Reliability testing is an estimation of the extent to which the instrument measures accurately and consistently what needs to be measured, thus rendering the same results whenever it is used in similar conditions (Delport, 2005:162-163; Murphy-Black, 2006:376). Reliability indicates the extent to which the study method and/or results could be replicated by other researchers (Neuman, 1997:145).

Several methods to establish reliability are described in the literature. The researcher was interested in establishing the stability of the questionnaire in obtaining results that are fairly similar if administered to the same person or groups of persons (Polit et al., 2001:305), thus providing *"reliability across time"* (Neuman, 1997:138). The test-retest method was selected, mainly due to its relative ease of use. This method entails the administration of the questionnaire on two separate occasions, to the same group of people, within a certain time interval, ranging from two days to two weeks.

3.10.2.1 Participants and procedure for reliability testing

To expedite questionnaire construction finalisation, it was administered to the same two RNs on two different days, with a four day interval. According to Marx, Menezes, Horovitz, Jones and Warren (2003:730-735), who conducted a comparative study, there is no significant clinical or statistical difference in test-retest measurement reliability when performed with a two day, compared to a two week, interval. In the test-retest method, the consistency of the response data is compared to establish a reliability coefficient – the closer the reliability coefficient is to 1.00, the higher the reliability of the measuring instrument (Murphy-Black, 2006:376). Reliability coefficients from 0.70 upwards are considered acceptable, but measurements of 0.85 to 0.95 are more preferable (Polit et al., 2001:306).

Pearson's *r* correlation coefficient measures the significance of the difference between two scores and is appropriate for establishing test-retest reliability. The researcher's analysis of the two completed questionnaires, by means of a Pearson's *r* correlation coefficient, resulted in a reliability coefficient ranging from $r = 0.99$ to $r = 1.00$, thus confirming test-retest reliability in the preferable range (Table 3.9).

TABLE 3.9: Test-retest reliability results for the questionnaire

Questionnaire sub-section *(applicable questions)*	***Participant 1***		***Participant 2***	
	Test Score	***Retest Score***	***Test Score***	***Retest Score***
Attitude *(10 – 28)*	57	61	63	68
Knowledge *(29 – 49)*	15	14	17	18
Practice 1 *(52 – 56)*	3	2	5	4
Practice 2 *(57 – 63)*	9	8	12	13
Practice & knowledge *(64 – 65)*	1	1	1	1
All knowledge *(29 – 49 & 64 – 65)*	16	15	18	19
All practice *(52 – 65)*	13	11	18	18
PEARSON'S r	0.99		1.00	

Once the reliability of the questionnaire was established, a pilot study was conducted.

3.10.3 Pilot testing

A pilot study, described as a small scale study, or trial run, in preparation for a bigger study (Polit et al., 2001:467), was conducted prior to the commencement of the study. The purpose of the pilot study was to confirm the appropriateness of the questionnaire, as well as the suitability of the questionnaire with regards to the instructions given, the language used and the time it took to complete. Pilot study

respondents were requested to indicate the questionnaire start and end time and the suitability of the method of administration. In addition, the pilot study provided the researcher with the opportunity to confirm data gathering and analysis methods, as recommended by Uys and Basson (1991:112).

3.10.3.1 Pilot study participants

The pilot study comprised six nurses from a hospital included in the sample, but these participants were excluded from the actual study. The pilot study participants, who were not involved in construct validity testing as they would have been familiar with the questionnaire, comprised

- Two RNs
- Two ENs; and
- Two ENAs

3.10.3.2 Pilot study outcome

The pilot study resulted in minor adjustments being made to the questionnaire. The general instructions (for example how respondent mistakes should be corrected) and the clarity of transitional statements, more specifically those associated with questions 51 and 65, were adjusted. The estimated time that it would take to complete the questionnaire was also confirmed as being between 15 and 50 minutes. The total time (160 minutes) it took the six pilot study respondents resulted in a mean completion time of 26.6 minutes, rounded off to 30 minutes, to give an indication to the survey-respondents of the time required for the completion of the questionnaire. Subsequently, data collection could be finalised and implemented.

3.11 Data collection method

The data collection method employed in this study was the survey technique, using a self-administered questionnaire. In summary, the data gathering procedure progressed as follows:

- Once the sample size for each hospital was determined, the Researcher customised the validated questionnaire for each institution by inserting the Research Contact Person's name and contact details, the location of the returns box and the return date.
- An envelope was attached to each questionnaire to facilitate anonymity;
- Questionnaires were grouped according to the ward and department for each identified participant to assist the Research Contact Person in distributing the questionnaires;

- The researcher went to each hospital on the day following the sampling (with the exception of Hospital 2) where the prepared questionnaires were handed to the Research Contact Person to distribute to each identified participant, or alternatively to the Nursing Unit Manager for distribution. The questionnaire returns box was placed at the prior agreed location. At Hospital 2, the distribution took place on the same day due to time constraints experienced by the researcher at the time and there the questionnaires were put into nursing unit specific post boxes with the knowledge of the Nursing Unit Managers;
- In cases where the identified participant was not available (on leave, sick leave or other reason), the Research Contact Person replaced that specific person with an alternative respondent from the same category, selected randomly as described previously. This was only necessary in two instances, at Hospital 4.

Although a 48-hour turn-around time after delivery of the questionnaire is recommended to increase the response rate (Delport, 2005:168), the researcher allowed for a two-week period to give the respondents on different shifts sufficient time to return the questionnaire. The data collection process is represented in Figure 3.2.

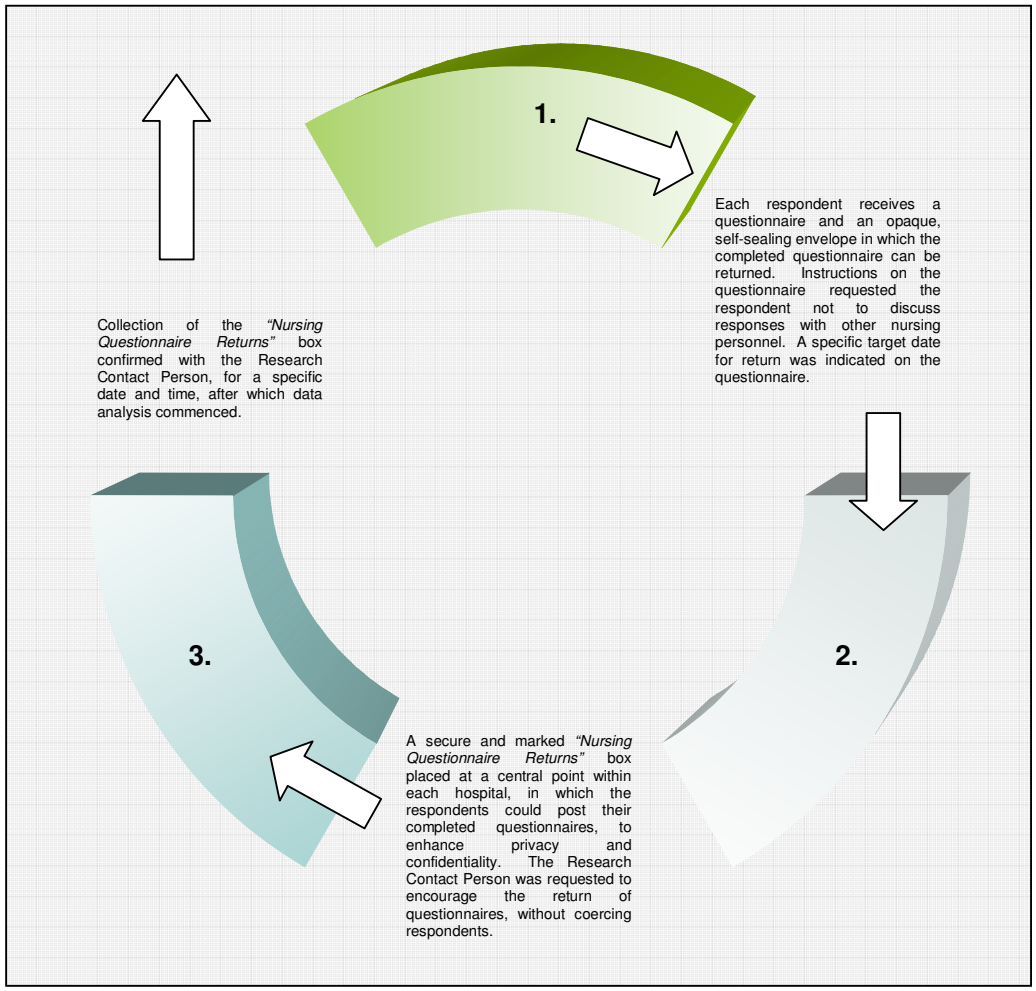

FIGURE 3.2: The data collection process

During the two-week data gathering period, follow-up contact was maintained with the Research Contact Person to provide support and for trouble shooting. No major problems arose.

Having reviewed the phases of research planning, structuring and execution, with actual progress reflected in Table 3.2, data capturing and analysis will be discussed next.

3.12 Data management, capturing and analysis

The effective management of data aims to ensure that useful and interpretive information is gathered, analysed and reported (Uys & Basson, 1991:117), in this study achieved by:

- Ensuring that completed questionnaires were grouped (coded) according to randomly pre-assigned identification numbers for each hospital, known to only the researcher.

- Analysing the gathered data in terms of the study objectives to ensure that comparisons could be made and/or similarities and differences identified through statistical analysis.
- Reporting on the data gathered and analysed in this research report.

The returned questionnaires were securely locked in a steel cabinet and will be retained for twenty-four months after analysis to facilitate any post analysis enquiries or discrepancies. Thereafter, the questionnaires will be shredded.

3.12.1 The data capturing process

The aim of data capturing and statistical analysis is to draw conclusions about the research questions (Kruger, De Vos, Fouché & Venter, 2005:218). Prior to data gathering and analysis, an experienced researcher (JI) suggested the drafting of a data shell for the proposed study forcing the researcher to focus on combining the goals and objectives of the study with the desired data analysis outcomes.

Data capturing and analysis were facilitated by preparing an Excel spreadsheet. The spreadsheet provided for the capturing of administrative aspects, information related to the specific objectives and for reflecting the total and mean scores for certain items, per question and for each variable.

Immediately after the completed questionnaires had been collected from the various hospitals, the researcher captured the data. Two days after the data from the last questionnaire had been captured, data were re-checked for data integrity. The Pivot table function and the spreadsheet set-up pinpointed a few minor data capturing inconsistencies, evident from calculated means and frequencies. These inconsistencies were rectified before statistical analysis commenced and therefore data integrity was confirmed.

3.12.2 Statistical analysis

The following statistical analyses were performed:

- Descriptive analysis, to obtain frequency distributions for discrete variables (for example Yes/No items) and measures of central tendency, computed from the coding scores assigned to the Likert scale items (Kruger et al., 2005:222, 231). Item analysis was performed on the biographical and professional information to obtain a profile of the nursing respondents (Polit & Hungler, 1993:438), applying mainly to objective 1.9.1. Initially, box plots of the attitude, knowledge and practice behaviour scores showed that there were some outliers, that is subjects with scores far below the rest of the data.

'No responses[4]' and 'Inadequate responses[5]' were excluded from the analysis. To confirm the presence of outliers, a formal statistical test, using the method of Dixon (1951:68-78), was performed (Table 3.10).

TABLE 3.10: An overview of the formal statistical test, using the method of Dixon, to determine the presence of data outliers

Statistical action	*Statistical test formula*	*Result*
Data for each hospital was ranked from the smallest to the largest value.	*y(1) < y(2)<…< y(n)*	The test compares the difference between the lowest and the next lowest score, with the range of the data.
The null hypothesis was applied.	*H0 y(1), not an outlier*	If the test rejected the hypothesis H0 y(1), then the test was repeated using the next smallest value
The test statistic was applied.	*[y(2)-y(1)] / [y(n)-y(1)]*	The tests were made at a 10% level. Eight significant outliers, representing six cases, were identified: One outlier was knowledge related (case number 192 from Hospital 2), five were attitude related (case number 70 from Hospital 5, case number 98 from Hospital 1, case number 151 from Hospital 3, case number 181 and 192 from Hospital 2), and two were related to practice behaviour (case number 161 from Hospital 3 and case number 192 from Hospital 2). Scrutinising the case-specific questionnaires revealed that the outliers were a result of a high frequency of inadequate or no responses, resulting in low case-specific knowledge, attitude and practice behaviour scores. To maintain data integrity, the researcher decided to exclude the outliers from final statistical analysis.

- Categorical variables were compared using the χ^2 test, or Fisher exact test when appropriate, and continuous variables were compared, due to non-normality of distribution of variables analysed, using the Mann-Whitney or Kruskal-Wallis non-parametric test. The Shapiro-Wilks test was used to test for normality.
- Logistic regression models were fitted to determine factors associated with (1) attitudes, (2) knowledge and (3) practice behaviour of respondents, which were fitted as binary dependent variables, each in a separate model. These variables were dichotomized using the 1st quartile of the variable's distribution as a cut-off for poor score response, and each participant's score was recoded as a poor response, or not, based on this cut-off. Explanatory variables included in the analyses included category of nurse, gender, hospital sector, years of experience after registration/enrolment, day/night shift and practice discipline. Strength of association was expressed as an Odds Ratio (OR). All tests were two-sided and a p-value of ≤0.05 was considered significant. These analyses applied mainly to objectives 1.9.2 and 1.9.3.

[4] No response (NR): Space left open on questionnaire, that is no choice made or no information provided.
[5] Inadequate response (IR): More than on choice made on questionnaire where only one choice was appropriate.

The support of two statisticians was obtained to assist the researcher with the advanced data analysis, using the GenStat® and SPSS® software programs. These analyses are briefly reflected in Table 3.11.

TABLE 3.11: Statistical tests used to show significance, relationships and differences between variables

Statistical test	*Statistical test formula*	*Purpose*
Chi-Squared test	$X^2 = \Sigma((O-E)^2/E)$ Where O = observed frequency E = expected frequency	*"A nonparametric test of statistical significance used to assess whether a relationship exists between two categorical variables…"* (Polit et al., 2001:458).
Logistic regression	$Logit(p)=a+b_1x_1+b_2x_2+\ldots+b_k+x_k$ where x_i = is the ith explanatory variable (i = 1, 2, 3, …, k) p = estimated value of probability a = estimated constant term $b_1,b_2,\ldots,b_k$ = estimated logistic regression coefficient	*"A multivariate regression procedure that analyzes relationships between multiple independent variables and categorical dependent variables…"* (Polit et al., 2001:464).
Mann-Whitney Test	$\mu_T = \frac{1}{2}n_1(n_1+n_2+1)$	*"A nonparametric statistical test for identifying differences between two populations based on the analysis of two independent samples"* (Anderson, Sweeney & Williams, 1996:774).
Kruskal-Wallis Test	$W = [(12/n_T(n_T+1))\ \Sigma^k_{i=1}(R_i^2/n_i)] - 3(n_T+1)$	*"A nonparametric test for identifying differences among three or more populations"* (Anderson et al, 1996:774).
Odds Ratio	$OR = (a \times d)/(b \times c)$	*"…to assess the risk of a particular outcome if a certain factor is present"* (Crichton, 2001:268).
NOTE: All tests done at a 95% confidence level		

Research methodology is an important aspect of research as it provides structure and ensures that the results are reliable. Similarly, reviewing the ethics of a study is accepted internationally as an imperative and is explored next.

3.13 Ethical Considerations

Research must be ethical. The *Declaration of Helsinki* (2008) specifically safeguards the integrity of the research participants, protection of their privacy and minimising the impact of the study on their physical, mental and psychological well-being. Approval to conduct research in health care institutions is usually obtained from a local research ethics committee and access should be requested from gatekeepers such as health departments and managers of the respective health care institutions (Brink, 1996:38-39).

Permission to conduct the research was obtained from the Faculty of Health Sciences' Ethics Committee of the University of Cape Town (reference REC REF 205/2008, Appendix A) after approval by the Research Committee of the School of Health and Rehabilitation Sciences. Permission for access to the various hospitals was obtained from the Western Cape Department of Health (reference 11/R), the South African Military Health Service (reference SG/DMN/R/82424870PE, and

2MH/R/104/10/18), the South African National Defence Force Counter Intelligence Division (reference DI/SDCI/DCIOC/R/202/3/7), the private hospital groups and the respective nursing managers of the hospitals (Appendix D).

Ethics, as defined by Strydom (2005b:57), is a set of suggested, but widely accepted moral principles and rules, regarding behavioural expectations related to reasonable conduct towards research participants, against which the researcher must test himself. Such ethical principles include informed consent, nonmaleficence and beneficence, privacy and confidentiality, autonomy and justice.

3.13.1 Informed consent

Informed consent, in essence, embodies the provision of adequate information to research participants regarding the research being conducted, an understanding by the participant regarding the information that is provided, and voluntary participation (Mouton, 2001:244). To achieve this, the information in the covering letter (Appendix C), was based on the guidelines in Hunn (2006:150-151) and Neuman, (1997:450), as reflected in Table 3.12.

TABLE 3.12: Information included in the questionnaire covering letter to facilitate informed consent

Guidelines recommended for inclusion in covering letter	***Actual wording in covering letter***
The purpose of the study: According to a study by Singer (in Neuman, 1997:450), providing this information tends to improve the reliability of the answers provided.	"Apart from the scientific gain to our profession, it is envisaged that the findings of this study will be utilised to formulate strategies to: • Improve the level of knowledge that nurses of all professional categories have with regards to best practice record keeping guidelines; • Circumvent barriers to effective record keeping; • Enhance the attitude of nurses towards record keeping; • Ensure that best practice record keeping guidelines are applied uniformly in the public and private sector; • Aid quality improvement in record keeping."
Voluntary participation, including possible risks and benefits of participation in the study.	"Participation is voluntary and there will be no adverse consequences for not completing the questionnaire. As this is a survey, no specific risks to participation are anticipated."
Confidentiality and privacy arrangements: In a meta-analysis of studies (in Neuman, 1997:450) by Singer, Von Thurn and Miller, responses were *"moderately"* improved when this aspect was explicitly stated.	"Your anonymity, and that of the hospital, is ensured, as no personal identifying information is included on this questionnaire. In the final research report, all information will be converted into figures and graphs, after having been statistically analysed with a computer program – this will generalise the findings beyond specific individuals or institutions."
Freedom to withdraw at any time and without penalty.	"Participation is voluntary and there will be no adverse consequences for not completing the questionnaire."
Dissemination of study results.	"If you require any further information regarding the study, or are interested in the findings (due out towards the end of 2008) please do not hesitate to contact:
Contact details of researcher and supervisor: Not only does this enhance the legitimacy of the research, but also provides inherent protection to the participants, due to the sharing of information.	**Johann Olivier (Researcher)** 1104 Liberty Grande Cnr Voortrekker & Vanguard Drive Goodwood 7460 Telephone: 083 741 8597 Email: jmoli4@mweb.co.za **Una Kyriacos (Supervisor)** School of Health and Rehabilitation Sciences Division of Nursing and Midwifery University of Cape Town Mowbray 7705 Telephone: 021 406 6410 Email: Una.Kyriacos@uct.ac.za"

Neuman (1997:450) reports that *"…consent statements are optional for most survey … research…"* and continues that *"…[t]he greater the risk of potential harm to subjects, the greater the need for written consent…".* As no potential harm to participation was anticipated for this study, it was accepted that the completion and return of the questionnaire would imply that informed consent had been given by each respondent. Consent to participate in the study was thus confirmed by including the statement, *"Your voluntary participation in this study will be confirmed by returning a completed questionnaire"* as part of the instructions to completing the questionnaire.

3.13.2 Nonmaleficence and Beneficence

Nonmaleficence refers to the obligation of the researcher not to cause harm (Pera, 1996:23). Beneficence obliges the researcher to do good (Fry, 1994:288) by avoiding physical and/or emotional harm to participants. Emotional harm or discomfort is difficult to predict, as it will depend on the participant's experience of the research topic. Although no major physical and/or emotional harm was foreseen in this study, every possible precaution was taken to protect the participants by employing sound scientific and ethical principles before, during and after the research process (Strydom, 2005b:58).

At best, upholding the principle of nonmaleficence included assuring participants that participation in the study was voluntary, confirmed by the return of a completed questionnaire. Participants were informed that there would be no adverse consequences for not completing the questionnaire. As this was a survey, no specific risks were anticipated by participating in the study and beneficence was assumed. Although beneficence cannot be assured explicitly, it was assumed because the study findings would add to the existing body of nursing knowledge even if only to confirm what is known about record keeping practices in nursing.

3.13.3 Privacy and Confidentiality

Singleton, (quoted by Strydom, 2005b:61), defines privacy as the *"individuals right to decide when, where, to whom, and to what extent his or her attitudes, beliefs, and behaviour will be revealed".* Respondent anonymity ensured privacy, as neither the researcher nor anyone else was able to identify the respondent or hospital, in relation to specific attitudes, knowledge or practice behaviour.

Confidentiality relates to information which might be linked to an individual or institution, held in confidence by the researcher. In other words, such information is available but not made known (Neuman, 1997:453) or published. In this study, the questionnaire bore no identifying information, apart from a randomly assigned code

known only to the researcher, identifying the institution where the questionnaire was completed. The findings cannot be linked to specific hospitals in this research report, ensuring continued confidentiality.

Privacy and confidentiality were further enhanced by providing the respondents with opaque, self-sealing envelopes in which they had to place their completed questionnaires. All data were coded according to the participants' professional qualification. In the final research report, all data were converted into figures and graphs, after having been statistically analysed with a computer program, thus generalising the findings beyond specific individuals or institutions.

3.13.4 Autonomy

The basis of this ethical principle is rooted in the understanding that the individual has a right to make his own choices, based on his personal values and beliefs (Fry, 1994:30).

The purpose of the study was to describe nurses' self-reported attitudes towards, knowledge of and practice behaviour relevant to record keeping, based on standards, criteria and guidelines. Self-reporting and the voluntary return of completed questionnaires imply autonomy. The results of the study reflect the participants' own choices, beliefs and values relative to record keeping.

3.13.5 Justice

The ethical principle of justice necessitates the fair and equal distribution of benefits and liabilities (Fry, 1994:29), which manifest in fairness to all people (Aiken & Catalano, 1994:23). Every possible precaution was taken to protect the participants during the survey and no specific risks were anticipated or experienced. Similarly, no adverse consequences for not completing the study questionnaire were envisaged or evident.

Considering the possible benefits to participating in the study it was envisaged that the study findings would add to the existing body of nursing knowledge and also inform further research. Before, during and after the study there was fair and equal treatment of all individual participants and institutions without prejudice. Attempts were made to apply consistent methods of distribution, administration and collection of questionnaires throughout the study.

3.14 Chapter summary

This chapter provided an overview of the research process employed during this study. The research design, setting, study population including the determination of the sample size and sampling method, the construction and validation of the data

collection tool and the methods employed to ensure scientific rigour, were described. The data management processes of data capturing and statistical analysis were explained and the ethical considerations were outlined.

The descriptive cross-sectional survey allowed for a broad overview of the self-reported attitudes, knowledge and practice behaviours of nurses relative to general record keeping standards, criteria and guidelines in the selected hospitals. The empirical and primary data collected allowed the researcher to answer research questions that are primarily descriptive in nature. Stratified random sampling ensured data representation across the spectrum of three South African nurse categories in the six hospitals included, but purposive selection of the six hospitals limited the generalisability of the data to the target population of nurses in the Cape Town Metropole. Data collection using a structured questionnaire, albeit with limited validation and reliability, nevertheless aided descriptive analysis. Survey data is sometimes considered to *"be very simple and context specific"* (Mouton, 2001:152-153) and this applies to this study of limited scale, at best serving as a *"springboard into more rigorous studies with comparison groups"* (Grimes & Schulz, 2001:148). The study findings are presented in the next chapter.

CHAPTER 4

FINDINGS

4.1 Introduction

In this chapter the research findings are presented. Polit et al. (2001:470) define research findings as *"[t]he results of the analyses of the research data that address the research questions…"* The findings are derived from specific objectives that address the research questions. The raw data are included as Appendix H.

4.2 Questionnaire response rate

The study population reflected in Table 4.1, consisted of 1604 nurses in the six hospitals, comprising 1190 (74.18%) nurses from the public sector and 414 (25.81%) from the private sector.

TABLE 4.1: Study population data, questionnaire distribution and response rates for each hospital and sector

Hospital	*Study population*	*No. of questionnaires distributed*	*No. of questionnaires returned*	*Response rate*	*Cases excluded*	*No. of questionnaires used for data analysis*
Hospital 1	698	98	51	52.04%	1	50
Hospital 2	382	76	31	40.78%	2	30
Hospital 3	110	35	25	71.42%	2	23
Sub-total: Gov. hospitals	*1190*	*209 (59.03%)*	*107*	*51.19%*	*5*	*102*
Hospital 4	186	60	33	55.00%	0	33
Hospital 5	140	45	18	40.00%	1	17
Hospital 6	88	40	34	85.00%	0	34
Sub-total: Priv. hospitals	*414*	*145 (40.96%)*	*85*	*58.62%*	*1*	*84*
STUDY TOTAL	**1604**	**354**	**192**	**54.23%**	**6**	**N=186**

There was an overall response rate of 54.23%, with 192 completed questionnaires returned, with a range of 40.00% to 85.00%. The response rate for Government hospitals, based on the number of questionnaires distributed, was 51.19% (n=107/209) and that of the Private hospitals, 58.62% (n=85/145). Six questionnaires represented significant outliers and were excluded from the final data analysis to ensure data integrity, leaving 186 (52.54%) questionnaires for analysis.

4.3 The demographic and professional profile of nursing respondents

Study objective 1.9.1 aimed to describe and compare the demographic and professional profile characteristics of the respondents (questions 1 to 9). Data on gender, age, years of experience, hospital sector, category of nurse, area of practice, functional roles, shift and employment status are described.

4.3.1 Respondent profile: Gender, age, years of experience and hospital sector

The gender profile reflected that 94.62% (n=176) of respondents were female and 4.30% (n=8) male, with 1.08% (n=2) providing an inadequate or no response (Table 4.2).

TABLE 4.2: Demographic and professional profile of respondents

PROFILE CHARACTERISTIC	*NR*	*IR*	*RN*	*EN*	*ENA*	*TOTAL*	*%*
Gender (n)	**1**	**1**	**92**	**42**	**50**	**186**	**100**
Male	0	0	2	0	6	**8**	**4.30**
Female	0	1	89	42	44	**176**	**94.62**
NR / IR	1	0	1	0	0	**2**	**1.08**
Mean age (in years)	**-**	**-**	**42.71**	**42.51**	**40.74**	**42.26**	**-**
Mode	-	-	37	45	38	**37**	**-**
Range	-	-	23-64	24-58	25-55	**23-64**	**-**
Post-registration/enrolment experience (n)	**1**	**1**	**92**	**42**	**50**	**186**	**100**
< 1 year	0	0	2	3	6	**11**	**5.91**
1 – 5 years	0	0	15	6	10	**31**	**16.66**
6 – 10 years	0	0	16	5	2	**23**	**12.36**
11 – 15 years	0	0	15	7	7	**29**	**15.59**
> 15 years	0	1	44	21	25	**91**	**48.92**
NR / IR	1	0	0	0	0	**1**	**0.54**
Hospital Sector (n)	**1**	**1**	**92**	**42**	**50**	**186**	**100**
Government	1	1	53	25	22	**102**	**54.84**
Private	0	0	39	17	28	**84**	**45.16**
TOTAL (%)	**0.54**	**0.54**	**49.46**	**22.58**	**26.88**	**-**	**100**

LEGEND: NR = No response; IR = Inadequate response; RN = Registered Nurse; EN = Enrolled Nurse; ENA = Enrolled Nursing Auxiliary

The mean age of all respondents, with a range of 23 to 64, was 42.26 years. This correlates with the finding that 48.92% (n=91) of the respondents had more than 15 years of experience after registration or enrolment. The data in Table 4.2 show that

44 of 92 (47.82%) RNs, 21 of 42 (50.00%) ENs and 25 of 50 (50.00%) ENAs had more than 15 years of experience. Of the 186 respondents, 54.85% (n=102) worked in Government Hospitals, comprising 53 (51.96%) RNs, 25 (24.51%) ENs and 22 (21.57%) ENAs. The 45.16% (n=84) Private Hospital respondents consisted of 39 (46.43%) RNs, 17 (20.24%) ENs and 28 (33.33%) ENAs (Table 4.2).

4.3.2 Respondent profile: Category of nurse

The RN:EN:ENA ratio depicted in Table 4.2, shows a general ratio of 49:23:27. In Government Hospitals the RN:EN:ENA ratio was 52:25:22 and in Private Hospitals, 46:20:33.

4.3.3 Respondent profile: Areas of practice

The respondents worked in 22 nursing practice disciplines (Table 4.3).

TABLE 4.3: Frequency table indicating the practice areas of respondents

Practice discipline	*NR*	*IR*	*RN*	*EN*	*ENA*	*Total*	*Combined categories*	*Combined number of respondents (%)*
Surgical Unit	-	-	13	6	16	**35**	*Surgical / Intensive Care (IC) Units*	**90 (48.39%)**
Intensive Care Unit (ICU) – Adult	-	-	11	2	1	**14**		
Other type of Unit – Orthopaedic	-	-	2	0	0	**2**		
Obstetrics & Gynaecology Unit	-	-	3	2	1	**6**		
Specialised Unit	-	-	20	8	3	**31**		
Specialised Unit – Not specified	-	-	0	0	1	**1**		
Medical / Surgical Unit	-	-	1	0	0	**1**		
Paediatric Unit	-	-	12	2	6	**20**	*Paediatric Units*	**20 (10.75%)**
Maternity Unit	-	-	11	4	2	**17**	*Maternity Units*	**17 (9.14%)**
Medical Unit	-	1	10	7	11	**29**	*Medical Units*	**59 (31.72%)**
Other type of Unit – Dermatology	-	-	0	1	0	**1**		
Palliative, Oncology and Rehabilitation Unit	-	-	6	9	8	**23**		
NR / IR	1	-	3	1	1	**6**		
TOTAL (n / N)	**1**	**1**	**92**	**42**	**50**	**186**		**186**

LEGEND: NR = No response; IR = Inadequate response; RN = Registered Nurse; EN = Enrolled Nurse; ENA = Enrolled Nursing Auxiliary

Most respondents (18.82%, n=35) worked in Surgical Units, closely followed by Specialised Units[6] (16.66%, n=31), but excluding adult Intensive Care Units (7.53%,

[6] Specialised Units as indicated by respondents: Bone Marrow Transplant Unit, Burns Unit, Cardiac and Thoracic Unit, Cardiac Catheterisation Laboratory, Coronary Care Unit, Child and Adolescent Psychiatric Unit, Gastro-Intestinal Unit, Haematology Unit, Liver Unit, Neonatal Intensive Care Unit, Neuro-surgical Unit, Psychiatric Unit, Renal Unit, Trauma Unit.

n=14). The other disciplines included Medicine (15.59%, n=29), Palliative Care, Oncology and Rehabilitation (12.37%, n=23), Paediatrics (10.75%, n=20), Maternity (9.14%, n=17), Obstetrics and Gynaecology (3.23%, n=6) and a Medical and Surgical Unit (0.54%, n=1), while three respondents (1.62%) indicated Dermatology or Orthopaedics under the *"Other – please specify"* option. Six respondents (3.23%) gave an inadequate or no response. For the purpose of comparative data analysis, the practice disciplines were reduced (collapsed) to four categories by grouping similar practice disciplines together, based on nursing activities. These combined categories are reflected in Table 4.3.

4.3.4 Respondent profile: Functional roles

The data in Table 4.4 show that 15.05% (n=28) of the RNs functioned at a basic level, that is having received no further functional promotion after registration. In the EN category, 11.29% (n=21) were Senior ENs, and 13.98% (n=26) of the ENA category were Senior ENAs.

TABLE 4.4*: *Frequency table reflecting the functional positions of the respondents

Functional Position	*NR*	*IR*	*RN*	*EN*	*ENA*	*Total*
Nursing Unit Manager	0	0	17	-	-	**17**
Chief Professional Nurse	0	0	17	-	-	**17**
Senior Professional Nurse	0	0	14	-	-	**14**
Registered Nurse	0	0	28	-	-	**28**
Shift Leader	0	0	15	-	-	**15**
Senior Enrolled Nurse	0	0	-	21	-	**21**
Enrolled Nurse	0	0	-	17	-	**17**
Senior Enrolled Nursing Auxiliary	0	0	-	-	26	**26**
Enrolled Nursing Auxiliary	0	0	-	-	24	**24**
Other	0	0	-	0	0	**0**
NR / IR	1	1	1	4	0	**7**
TOTAL (n / N)	**1**	**1**	**92**	**42**	**50**	**186**

LEGEND: NR = No response; IR = Inadequate response; RN = Registered Nurse; EN = Enrolled Nurse; ENA = Enrolled Nursing Auxiliary

4.3.5 Respondent profile: Shifts and employment status

Data on the shift worked most frequently in the preceding 12 months (Table 4.5) show that 70.43% (n=131) of respondents were mainly on day duty. The remainder (25.81%, n=48) did night duty and 3.76% (n=7) gave an inadequate or no response.

TABLE 4.5: Frequency table reflecting the shift most often worked by respondents in the preceding six months and their employment status

Shift & Employment Status	*NR*	*IR*	*RN*	*EN*	*ENA*	*Total*
Shift (Total)	**1**	**1**	**92**	**42**	**50**	**186**
Day Duty	0	1	69	31	30	**131**
Night Duty	0	0	21	7	20	**48**
NR / IR	1	0	2	4	0	**7**
Employment (Total)	**1**	**1**	**92**	**42**	**50**	**186**
Permanent	0	1	91	40	48	**180**
Nursing Agency	0	0	0	0	0	**0**
NR /IR	1	0	1	2	2	**6**

LEGEND: NR = No response; IR = Inadequate response; RN = Registered Nurse; EN = Enrolled Nurse; ENA = Enrolled Nursing Auxiliary

All the respondents who gave adequate responses were permanently employed (n=180, 96.77%), with six respondents (3.23%) not indicating their permanent status. However, their permanent status was subsequently confirmed through deductive reasoning as no Nursing Agency personnel were included in the study, based on the fact that Agency Personnel are booked on a need-to-have basis and therefore their names could not have been included on the random selection name lists.

The biographical and professional data confirmed the appropriateness of the six independent variables identified for descriptive and comparative purposes: Variable 1 – Category of nurse, Variable 2 – Gender, Variable 3 – Hospital sector, Variable 4 – Years of experience after registration/enrolment, Variable 5 – Day/night shift, and Variable 6 – Practice discipline.

4.4 Statistical analysis of the respondents' attitude, knowledge and practice behaviour scores

To make a decision regarding the most appropriate statistical analysis method to use, the distribution of the scores for attitude, knowledge and practice behaviour of the participants was examined. The distribution of the scores was plotted in a histogramatic format and the Shapiro-Wilks test of normality was performed (Figure 4.1).

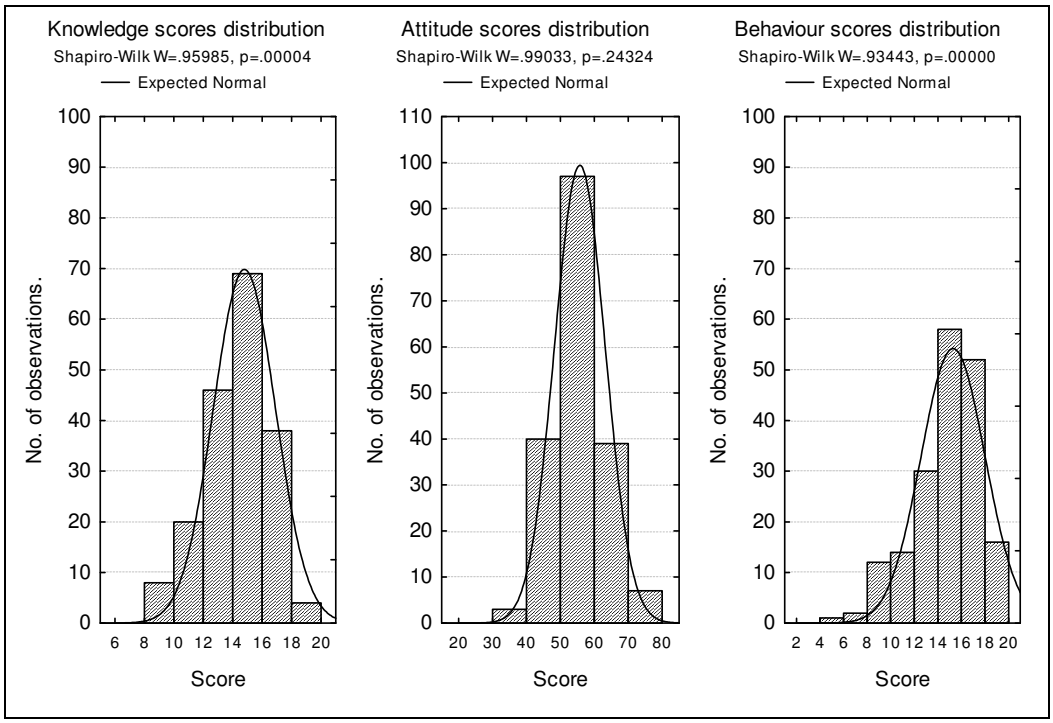

FIGURE 4.1: Histograms reflecting the knowledge, attitude and practice behaviour score distribution

From the above histograms, it is clear that scores were highly skewed and except for the attitude variable, were not normally distributed. Therefore a nonparametric approach was chosen to analyse the data pertaining to these variables. Table 4.6 reflects the median and the inter-quartile range (1st and 3rd quartile) of the scores for each variable.

TABLE 4.6: The inter-quartile range and median of the scores for each variable

		Attitude	*Knowledge*	*Practice behaviour*
Number:	***Valid***	186	185	185
	Missing	0	1	1
Median		56.00	15.00	16.00
Percentile:	***25 (1st quartile)***	51.00	13.00	14.00
	50 (Median, 2nd quartile)	56.00	15.00	16.00
	75 (3rd quartile)	60.25	16.00	17.00

For each of the dependent variables, that is attitude, knowledge and practice behaviour, the 1st quartile (Table 4.6) was used to dichotomize the score of each

participant as unfavourable (low score) or favourable (high score). For example, participants whose knowledge score was 13 or below were recorded as having an inadequate knowledge level as opposed to those scoring above 13 being recorded as having an adequate knowledge level. Therefore, the logistic regression analyses described below, model the likelihood of an unfavourable outcome as the dependent variable.

4.4.1 Analysis of the attitude related data

The aim of study objective 1.9.2 was to describe and compare the respondents' self-reported attitude towards record keeping against predetermined measurement scales (questions 10 to 28), while the aim of study objective 1.9.3 was to establish whether there was a significant association between selected variables and self-reported attitudes towards record keeping. The mean attitude score was 55.77 (out of a possible 76), the median 56 and the mode, 57. The response distribution for the attitude related questions is reflected in Table 4.7

TABLE 4.7: Attitude response distribution per question

Question	***Response frequency (%)****						***Total***
	NR/IR	***SA***	***A***	***U***	***D***	***SD***	
10. The Nursing Process forms the basis of good record keeping	2 (1.08%)	119 (63.98%)	61 (32.80%)	0 (0.00%)	3 (1.61%)	1 (0.54%)	**186**
11. Record keeping is not an essential element of effective care delivery.	4 (2.15%)	9 (4.84%)	9 (4.84%)	4 (2.15%)	64 (34.41%)	96 (51.61%)	**186**
12. Record keeping is a professional responsibility.	3 (1.61%)	121 (65.05%)	50 (26.88%)	2 (1.08%)	7 (3.76%)	3 (1.61%)	**186**
13. As nurses, we spend too much time on record keeping.	1 (0.54%)	25 (13.44%)	61 (32.80%)	8 (4.30%)	74 (41.11%)	17 (9.14%)	**186**
14. Record keeping is just as important as providing patient care.	1 (0.54%)	95 (51.08%)	82 (44.09%)	1 (0.54%)	7 (3.76%)	0 (0.00%)	**186**
15. In general, nursing records provide an up-to-date, comprehensive and concise view on the condition of, and care for the patient.	2 (1.08%)	111 (59.68%)	70 (37.63%)	0 (0.00%)	3 (1.61%)	0 (0.00%)	**186**
16. Record keeping does not ensure patient safety.	2 (1.08%)	16 (8.60%)	47 (25.27%)	10 (5.38%)	72 (38.71%)	39 (20.97%	**186**
17. In general, nursing records provide a holistic profile of the physical, psychological and social factors that influence the patient's well-being.	8 (4.30%)	66 (35.48%)	100 (53.76%)	6 (32.26%)	5 (2.69%)	1 (0.54%)	**186**
18. Nursing records facilitate communication between nursing personnel in the ward / department.	2 (1.08%)	94 (50.54%)	86 (46.24%)	0 (0.00%)	4 (2.15%)	0 (0.00%)	**186**

Question	Response frequency (%)*						Total
	NR/IR	SA	A	U	D	SD	
19. Accurate record keeping will not protect me against possible legal action.	3 (1.61%)	7 (3.76%)	11 (5.91%)	9 (4.84%)	71 (38.17%)	85 (45.70%)	**186**
20. The golden rule of record keeping is "if it is not recorded, it is considered not to have been done".	0 (0.00%)	122 (65.59%)	60 (32.26%)	1 (0.54%)	2 (1.08%)	1 (0.54%)	**186**
21. Routine procedures need not be recorded every time it is performed.	2 (1.08%)	34 (18.28%)	40 (21.51%)	6 (3.23%)	63 (33.87%)	41 (22.04%)	**186**
22. I will never be involved in a legal inquiry or a court case	5 (2.69%)	8 (4.30%)	18 (9.68%)	67 (36.02%)	49 (26.34%)	39 (20.97%)	**186**
23. My nursing training has prepared me to keep accurate records	1 (0.54%)	98 (52.69%)	79 (42.47%)	1 (0.54%)	7 (3.76%)	0 (0.00%)	**186**
24. The documentation system that is used in our hospital is too complicated to ensure accurate record keeping.	7 (3.76%)	13 (6.99%)	20 (10.75%)	13 (6.99%)	101 (54.30%)	32 (17.20%)	**186**
25. I would keep more accurate records, if I had more time at my disposal.	5 (2.69%)	35 (18.82%)	78 (41.94%)	9 (4.84%)	53 (28.49%)	6 (3.23%)	**186**
26. I don't need any more training or information regarding record keeping.	4 (2.15%)	12 (6.45%)	32 (17.20%)	14 (7.53%)	104 (55.91%)	20 (10.75%)	**186**
27. Record keeping is just another unnecessary task.	6 (3.23%)	2 (1.08%)	0 (0.00%)	0 (0.00%)	87 (46.77%)	90 (48.39%)	**186**
28. Nurses betray their relationship with the patient when they are slack in maintaining accurate records.	12 (6.45%)	33 (17.74%)	65 (34.95%)	23 (12.37%)	41 (22.04%)	12 (6.45%)	**186**

LEGEND: SA = Strongly agree; A = Agree; U = Uncertain; D = Disagree; SD = Strongly disagree; NR = No response; IR = Inadequate response

*Desired attitude, extrapolated from the reviewed literature (see Appendix I), indicated with a darker border

The attitude response distribution follows a particular pattern, with the majority of responses being aligned with the expected response. Question 22 is the only exception, as a relatively large portion of the respondents (36.02%, n=67) indicated that they were 'Unsure' whether they would be involved in a legal inquiry or a court case, while 26.34% (n=49) disagreed and 20.97% (n=39) strongly disagreed with the statement.

The respondents' attitudes are described next according to two categories, being positive or negative, based on the 25th percentile attitude score statistic (Table 4.6). The 1st quartile was chosen as the inter-category boundary due to the asymmetrical distribution of the attitude scores (Figure 4.1).

4.4.1.1 The association between category of nurse and self-reported attitudes towards record keeping

Within the three nurse categories (n=184), the majority of the respondents reported a positive attitude towards the importance of record keeping, with 132 (71.74%) respondents scoring between 52 and 75 points on the 76-point attitude scale. The remaining 52 respondents (28.26%) scored between 32 and 51 points, resulting in a negative attitude being reported (Table 4.8).

TABLE 4.8: Frequency table reflecting the self-reported attitudes according to the variable: Category of nurse

Variable		*Frequency (and ratio) of self-reported Attitude*		*P-value*
		Positive	*Negative*	
Category of nurse	***(N=184)***	**132 (71.74%)**	**52 (28.26%)**	**0.271**
RNs	*(n=92)*	69 (52.27%)	23 (44.23%)	
ENs	*(n=42)*	26 (19.70%)	16 (30.77%)	
ENAs	*(n=50)*	37 (28.03%)	13 (25.00%)	

At 75.00% (n=69/92), RNs reported the highest positive attitude ratio, followed by ENAs (74.00%, n=37/50) and ENs (61.90%, n=26/42). Conversely, 38.10% (n=16/42) of the ENs reported a negative attitude, the highest amongst the three categories. Amongst the 132 respondents reporting a positive attitude, 69 (52.27%) were RNs. Similarly amongst the 52 who reported a negative attitude, the RNs were in the majority (44.23%, n=23).

The Chi-squared test revealed that the category of nurse was not significantly associated with self-reported attitudes (p=0.271).

4.4.1.2 The association between gender and self-reported attitudes towards record keeping

The majority of the 184 respondents who indicated their gender, reported a positive attitude towards the importance of record keeping, with 133 (72.28%) respondents scoring between 52 and 75 points on the 76-point attitude scale. The remaining 51 respondents (27.72%) scored between 32 and 51 points, resulting in a negative attitude being reported (Table 4.9).

TABLE 4.9: Frequency table reflecting the self-reported attitudes according to the variable: Gender

Variable		*Frequency (and ratio) of self-reported Attitude*		*P-value*
		Positive	*Negative*	
Gender	***(N=184)***	**133 (72.28%)**	**51 (27.72%)**	**0.861**
Female	*(n=176)*	127 (95.49%)	49 (96.08%)	
Male	*(n=8)*	6 (4.51%)	2 (3.92%)	

The predominantly positive attitude was evident amongst both male and female respondents. The male respondents reported a positive attitude level of 75.00% (n=6/8), while 72.16% (n=127/176) of the female respondents reported a positive attitude. Amongst the 133 respondents reporting a positive attitude, 127 (95.49%) were female. Similarly amongst the 51 who reported a negative attitude, the female respondents were in the majority (96.08%, n=49).

The Chi-squared test revealed that gender was not significantly associated with self-reported attitudes (p=0.861).

4.4.1.3 The association between hospital sector and self-reported attitudes towards record keeping

The majority of the 186 respondents reported a positive attitude towards the importance of record keeping, with 133 (71.51%) scoring between 52 and 75 points on the 76-point attitude scale. The remaining 53 respondents (28.49%) scored between 32 and 51 points, resulting in a negative attitude being reported (Table 4.10).

TABLE 4.10: Frequency table reflecting the self-reported attitudes according to the variable: Hospital Sector

Variable		*Frequency (and ratio) of self-reported Attitude*		*P-value*
		Positive	*Negative*	
Hospital Sector	***(N=186)***	**133 (71.51%)**	**53 (28.49%)**	**0.021**
Government	*(n=102)*	80 (60.15%)	22 (41.51%)	
Private	*(n=84)*	53 (39.85%)	31 (58.49%)	

A predominantly positive attitude was evident in both hospital sectors. The highest positive attitude ratio was reported in the Government sector hospitals at 78.43% (n=80/102), while the Private sector hospitals reported a 63.10% (n=53/84) level. Of the 133 respondents reporting a positive attitude, 80 (60.15%) were from Government hospitals. Amongst the 53 respondents who reported a negative

attitude, the Private sector hospital respondents were in the majority (58.49%, n=31).

The Chi-squared test revealed that there was a significant association between hospital sector and self-reported attitudes (p=0.021).

4.4.1.4 The association between years of experience after registration/enrolment and self-reported attitudes towards record keeping

The majority of the 185 respondents who indicated their years of experience after registration/enrolment, reported a positive attitude towards the importance of record keeping, with 133 (71.89%) respondents scoring between 52 and 75 points on the 76-point attitude scale. The remaining 52 respondents (28.11%) scored between 32 and 51 points, resulting in a negative attitude being reported (Table 4.11).

TABLE 4.11: Frequency table reflecting the self-reported attitudes according to the variable: Experience

Variable		*Frequency (and ratio) of self-reported Attitude*		*P-value*
		Positive	*Negative*	
Experience	***(N=185)***	**133 (71.89%)**	**52 (28.11%)**	**0.950**
< 1 year	*(n=11)*	9 (6.77%)	2 (3.85%)	
1 to 5 years	*(n=31)*	22 (16.54%)	9 (17.31%)	
6 to 10 years	*(n=23)*	17 (12.78%)	6 (11.54%)	
11 to 15 years	*(n=29)*	21 (15.79%)	8 (15.38%)	
> 15 years	*(n=91)*	64 (48.12%)	27 (51.92%)	

A predominantly positive attitude was evident in all five groupings. The respondents with less than 1 year of experience after registration/enrolment had the highest positive attitude ratio at 81.82% (n=9/11), followed by those with 6 to 10 years of experience at 73.91% (n=17/23) and those with 11 to 15 years of experience, at 72.41% (n=21/29). Conversely, 29.67% (n=27/91) of those respondents with more than 15 years of experience reported a negative attitude, the highest amongst the five groupings. Amongst the 133 respondents reporting a positive attitude, 64 (48.12%) had more than 15 years of experience. Similarly amongst the 52 who reported a negative attitude, those with more than 15 years of experience were in the majority (51.92%, n=27).

The Chi-squared test revealed that years of experience after registration/enrolment was not significantly associated with self-reported attitudes (p=0.950).

4.4.1.5 The association between day/night shift and self-reported attitudes towards record keeping

The majority of the 180 respondents who indicated the shift they worked most frequently in the preceding 12-months, reported a positive attitude towards the importance of record keeping, with 130 (72.22%) respondents scoring between 52 and 75 points on the 76-point attitude scale. The remaining 50 respondents (27.78%) scored between 32 and 51 points, resulting in a negative attitude being reported (Table 4.12).

TABLE 4.12: Frequency table reflecting the self-reported attitudes according to the variable: Day/night shift

Variable		*Frequency (and ratio) of self-reported Attitude*		*P-value*
		Positive	*Negative*	
Day/night shift	***(N=180)***	**130 (72.22%)**	**50 (27.78)**	**0.017**
Day duty	*(n=131)*	101 (77.69%)	30 (60.00%)	
Night Duty	*(n=49)*	29 (22.31%)	20 (40.00%)	

A predominantly positive attitude was evident amongst the respondents working both day and night duty. Those respondents working mostly day duty reported the highest ratio of positive attitudes, at 77.10% (n=101/131). Amongst the respondents reporting a negative attitude, the highest negative attitude ratio was reported by those respondents working mostly night duty (40.82%, n=20/49) when compared to those working mainly day duty (22.90%, n=30/131). Amongst the 130 respondents reporting a positive attitude, 101 (77.69%) worked mainly day duty, while amongst the 50 respondents who reported a negative attitude, 30 (60.00%) worked mainly day duty.

The Chi-squared test revealed that there was a significant association between day/night shift and self-reported attitudes (p=0.017).

4.4.1.6 The association between practice discipline and self-reported attitudes towards record keeping

Within the four practice disciplines (n=186), the majority of the respondents reported a positive attitude towards the importance of record keeping, with 133 (71.51%) respondents scoring between 52 and 75 points on the 76-point attitude scale. The remaining 53 respondents (28.49%) scored between 32 and 51 points, resulting in a negative attitude being reported (Table 4.13).

TABLE 4.13: Frequency table reflecting the self-reported attitudes according to the variable: Practice Discipline

Variable		*Frequency (and ratio) of self-reported Attitude*		*P-value*
		Positive	*Negative*	
Practice Discipline	***(N=186)***	**133 (71.51%)**	**53 (28.49%)**	**0.268**
Surgical / IC Units	*(n=90)*	65 (48.87%)	25 (47.17%)	
Paediatric Units	*(n=20)*	15 (11.28%)	5 (9.43%)	
Maternity Units	*(n=17)*	15 (11.28%)	2 (3.77%)	
Medical Units	*(n=59)*	38 (28.57%)	21 (39.62%)	

A predominantly positive attitude was evident in all the practice disciplines. The highest positive attitude ratio was reported by the respondents working in Maternity Units at 88.24% (n=15/17), followed by those respondents working in Paediatric Units (75.00%, n=15/20) and Surgical Units (72.22%, n=65/90). The highest ratio of respondents reporting a negative attitude were amongst those working in the Medical Units, (35.59%, n=21/59). Amongst the 133 respondents reporting a positive attitude, 65 (48.87%) worked in Surgical Units. Similarly, amongst the 53 respondents who reported a negative attitude, 47.17% (n=25) worked in Surgical Units.

The Chi-squared test revealed that there was no significant association between practice discipline and self-reported attitudes (p=0.268).

4.4.1.7 Univariate and multivariate logistic regression analyses of the significant variables associated with attitude

Considering that both the variables Hospital sector and Day/night shift were significantly associated with a negative attitude, a multivariate logistic regression analysis was performed to examine the independent strength of association for each of the variables associated with a negative attitude (Table 4.14).

TABLE 4.14: Univariate and multivariate logistic regression analyses of significant variables related to attitude

Variable	*Univariate analysis*			*Multivariate analysis*		
	Odds Ratio	*95% CI*	*P-value*	*Odds Ratio*	*95% CI*	*P-value*
Hospital sector			**0.022**			**0.037**
Private	2.127	1.113-4.063		2.049	1.043-4.025	
Government	1	-	-	1	-	-
Day/night shift			**0.018**			**0.033**
Night duty	2.322	1.152-4.678	-	2.171	1.066-4.423	-
Day duty	1	-	-	1	-	-

The multivariate analysis confirmed that both variables (Hospital sector, p=0.037 and Day/night shift, p=0.033) had an independent significant association with the attitude of the respondents. The odds of respondents from the Private sector having a negative attitude were 2.049 times greater than the odds of Government sector respondents having a negative attitude (95% CI, 1.043-4.025). Considering the effect of the shift worked on the attitude of respondents towards record keeping, the odds of the respondents working night duty having a negative attitude were 2.171 times greater that the odds of those working day duty having a negative attitude (95% CI, 1.066-4.423).

A positive attitude towards record keeping was evident amongst the majority of respondents, while self-reported attitudes were significantly associated with hospital sector and day/night shift worked. Respondents working in the private sector, and on night duty, were more likely to have a negative attitude. In the next section, the knowledge related findings will be presented.

4.4.2 Analysis of the knowledge related data

The aim of study objective 1.9.2 was to describe the respondents' self-reported knowledge relative to record keeping against predetermined measurement scales (questions 29 – 49 and 64 – 65), while the aim of study objective 1.9.3 was to establish whether there was a significant association between selected variables and self-reported knowledge of record keeping. The mean knowledge score was 14.79 (out of a possible 23), while the median and the mode were both 15. The response distribution for the knowledge related questions is reflected in Table 4.15.

TABLE 4.15: Response distribution for knowledge related questions

QUESTION	***Response frequency (%)****				***Total***
	NR/IR	***True***	***False***	***Unsure***	
29. Records must be kept in permanent form, that is, permanent ink.	2 (1.08%)	179 (96.24%)	2 (1.08%)	3 (1.61%)	186
30. The date must be indicated with each entry I make.	2 (1.08%)	181 (97.31%)	3 (1.61%)	0 (0.00%)	186
31. When an entry is made in the patient record, the time must be recorded.	1 (0.54%)	185 (99.46%)	0 (0.00%)	0 (0.00%)	186
32. Abbreviations are acceptable as long as I can remember what it means.	3 (1.61%)	29 (15.59%)	149 (80.11%)	5 (26.88%)	186
33. My signature is "my mark", therefore there is no need for it to be legible, as long as I can identify it as mine.	3 (1.61%)	14 (7.53%)	164 (88.17%)	5 (26.88%)	186

QUESTION	Response frequency (%)*				Total
	NR/IR	True	False	Unsure	
34. When I use a specific type of machine (e.g. an infusion pump, a syringe driver, a vital signs monitor, a saturation monitor), I must indicate its serial number in the records that I keep.	6 (3.23%)	20 (10.75%)	129 (69.35%)	31 (16.67%)	186
35. Routine patient care activities can be recorded in the patient records before I have done it, as long as I always do it in the same way.	5 (26.88%)	7 (3.76%)	172 (92.47%)	2 (1.08%)	186
36. Changes and/or mistakes must be ruled out with a single line, initialled and dated.	4 (2.15%)	178 (95.70%)	4 (2.15%)	0 (0.00%)	186
37. I am responsible to record visits from other multi-disciplinary team members in the patient's nursing records.	6 (3.23%)	155 (83.33%)	21 (11.29%)	4 (2.15%)	186
38. Only the Registered Nurse is allowed to write in the Progress & Evaluation Report	4 (2.15%)	6 (3.23%)	171 (91.94%)	5 (2.69%)	186
39. The following sample entry is an accurate reflection of a patient's condition, reaction or need: *"The patient appears to have had a quiet day."*	5 (26.88%)	35 (18.82%)	139 (74.73%)	7 (3.76%)	186
40. The following sample entry is an accurate reflection of a patient's condition, reaction or need: *"The patient said: 'I slept well.'"*	3 (1.61%)	115 (61.83%)	61 (32.80%)	7 (3.76%)	186
41. The following sample entry is an accurate reflection of a patient's condition, reaction or need: *"The urinary catheter drained 250 ml clear, straw coloured urine."*	5 (2.69%)	154 (82.80%)	26 (13.98%)	1 (0.54%)	186
42. The following sample entry is an accurate reflection of a patient's condition, reaction or need: *"+++ Blood drained from the patient's abdominal wound."*	6 (3.23%)	91 (48.92%	78 (41.94%	11 (5.91%)	186
43. Special precautions taken (for example utilisation of cot sides, restraining) for patients who are delirious, confused, aggressive or sedated, must be reflected in the records after an incident occurred.	7 (3.76%)	74 (39.78%)	103 (55.38%)	2 (1.08%)	186
44. The effectiveness of analgesia that was administered to a patient must be recorded before the end of the shift.	1 (0.54%)	138 (74.19%)	42 (22.58%)	5 (26.88%)	186
45. Laboratory results that are received telephonically must be recorded in the patient's records after the Doctor has been informed.	5 (2.69%)	113 (60.75%)	56 (30.11%)	12 (6.45%)	186
46. I must include my legal designation / professional rank with my signature at least once per patient file.	3 (1.61%)	87 (46.77%)	92 (49.46%)	4 (2.15%)	186
47. The Scope of Practice Regulation (R2598) does not refer to my responsibility to keep records.	11 (5.91%)	15 (8.06%)	144 (77.42%)	16 (8.60%)	186
48. I cannot sign an entry in the patient records on behalf of someone else.	1 (0.54%)	175 (94.09%)	10 (5.38%)	0 (0.00%)	186
49. I must use layman's terms as far as possible when keeping records – this will ensure that more people can understand what was written.	7 (3.76%)	58 (31.18%)	97 (52.15%)	24 (12.90%)	186

LEGEND: NR = No response; IR = Inadequate response

*Correct answers, extrapolated from the reviewed literature (see Appendix I), indicated with a darker border

Table 4.15 shows that with reference to:

- Question 34, 69.35% (n=129/186) of the respondents did not know that the serial number of specific machines must be indicated in the records (SANA, 1994:49).
- Question 36, 95.70% (n=178/186) of the respondents did not know that changes and/or mistakes must be ruled out with a single line, signed with a full signature and dated, that is that initialling the mistake only is no longer acceptable (Documentation in Action, 2006:71; SANA, 1994:50; Troskie, 2002:347; Teytelman, 2002:123, 124; Wood, 2003:27).
- Question 42, 54.84% (n=102/186) of the respondents could not identify, or were unsure whether the statement was open to interpretation (Dimond, 2005a:461; Geyer 2004:42; Teytelman, 2002:123; Wood, 2003:27).
- Question 43, 55.38% (n=103/186) of the respondents did not know that the special patient care precautions implemented must always be reflected in the records, and not only when an incident or accident occurred (Herbst, 1997:39-41).
- Question 44, 74.19% (n=138/186) of the respondents did not know that the effectiveness of analgesia must be recorded within 30 to 60 minutes of administration and not merely before the end of the shift (Herbst, 1997:39-41; Geyer, 2004:40-42).
- Question 46, 49.46% (n=92/186) of the respondents indicated that the legal designation should be indicated with every signature (Dimond, 2005a:461; Teytelman, 2002:124) and 46.77% (n=87/186) indicated that once per patient file is sufficient.

The respondents' knowledge levels are described next according to two categories, being adequate or inadequate, based on the 25th percentile knowledge score statistic (Table 4.6). The 1st quartile was chosen as the inter-category boundary due to the asymmetrical distribution of the knowledge scores (Figure 4.1).

4.4.2.1 The association between category of nurse and self-reported record keeping knowledge scores

Within the three nurse categories (n=183), the majority of the respondents reported an adequate knowledge level relative to record keeping, with 137 (74.86%) respondents scoring between 14 and 23 points on the 23-point knowledge scale. The remaining 46 respondents (25.14%) scored between 0 and 13 points, resulting in an inadequate knowledge level being reported (Table 4.16).

TABLE 4.16: Frequency table reflecting self-reported knowledge scores according to the variable: Category of nurse

Variable		*Frequency (and ratio) of self-reported Knowledge*		*P-value*
		Adequate	*Inadequate*	
Category of nurse	***(N=183)***	**137 (74.86%)**	**46 (25.14%)**	**0.001**
RNs	*(n=92)*	78 (56.94%)	14 (30.43%)	
ENs	*(n=42)*	31 (22.63%)	11 (23.91%)	
ENAs	*(n=49)*	28 (20.44%)	21 (45.65%)	

An adequate knowledge level was evident in the group as a whole (74.86%, n=137/183), but particularly in the RN group (56.94%, n=78/137). Amongst the 46 respondents who reported an inadequate knowledge level, the ENAs were in the majority (45.65%, n=21/46).

The Chi-squared test revealed that there was a significant association between category of nurse and record keeping knowledge levels (p=0.001), meaning that RNs' responses indicated they had significantly more knowledge than both ENs and ENAs, while ENAs had the lowest level of knowledge.

4.4.2.2 The association between gender and self-reported record keeping knowledge scores

The majority of the 183 respondents scored adequate knowledge levels relative to record keeping, with 137 (74.86%) respondents scoring between 14 and 23 points on the 23-point knowledge scale. The remaining 46 respondents (25.14%) scored between 0 and 13 points, resulting in an inadequate knowledge score being reported (Table 4.17).

TABLE 4.17: Frequency table reflecting self-reported knowledge scores according to the variable: Gender

Variable		*Frequency (and ratio) of self-reported Knowledge*		*P-value*
		Adequate	*Inadequate*	
Gender	***(N=183)***	**137 (74.86%)**	**46 (25.14%)**	**0.399**
Female	*(n=175)*	130 (94.89%)	45 (97.83%)	
Male	*(n=8)*	7 (5.11%)	1 (2.17%)	

Adequate knowledge levels were evident amongst both male and female respondents. The male respondents reported adequate knowledge levels, at a ratio of 87.50% (n=7/8), while 74.29% (n=130/175) of the female respondents reported adequate knowledge levels. Amongst the 137 respondents reporting adequate

knowledge levels, 130 (94.89%) were female. Similarly amongst the 46 respondents who reported inadequate knowledge levels, the female respondents were in the majority (97.83%, n=45).

The Chi-squared test revealed that gender was not significantly associated with self-reported knowledge levels (p=0.399).

4.4.2.3 The association between hospital sector and self-reported record keeping knowledge scores

Of the 185 respondents who indicated the hospital sector in which they were active, the majority reported an adequate knowledge level relative to record keeping, with 138 (74.59%) scoring between 14 and 23 points on the 23-point knowledge scale. The remaining 47 respondents (25.41%) scored between 0 and 13 points, resulting in an inadequate knowledge level being reported (Table 4.18).

TABLE 4.18: Frequency table reflecting self-reported knowledge scores according to the variable: Hospital Sector

Variable		*Frequency (and ratio) of self-reported Knowledge*		*P-value*
		Adequate	*Inadequate*	
Hospital Sector	***(N=185)***	**138 (74.59%)**	**47 (25.41%)**	**0.184**
Government	*(n=102)*	80 (57.97%)	22 (46.81%)	
Private	*(n=83)*	58 (42.03%)	25 (53.19%)	

A predominantly adequate knowledge level was evident in both hospital sectors. The Government sector respondents reported the higher adequate knowledge level ratio at 78.43% (n=80/102), while the private sector respondents reported a 69.88% (n=58/83) ratio. Of the 138 respondents reporting an adequate knowledge level, 80 (57.97%) were from Government hospitals and of the 47 respondents who reported an inadequate knowledge level, 53.19% (n=25) were from Private sector hospitals.

The Chi-squared test revealed that hospital sector was not significantly associated with self-reported knowledge levels (p=0.184).

4.4.2.4 The association between years of experience after registration/enrolment and self-reported record keeping knowledge scores

The majority of the 184 respondents, who indicated their years of experience after registration/enrolment, reported an adequate knowledge level relative to record keeping. A total of 138 (75.00%) respondents scored between 14 and 23 points on the 23-point knowledge scale. The remaining 46 respondents (25.00%) scored

between 0 and 13 points, resulting in an inadequate knowledge level being reported (Table 4.19).

TABLE 4.19: Frequency table reflecting the self-reported knowledge scores according to the variable: Years of experience after registration/enrolment

Variable		*Frequency (and ratio) of self-reported Knowledge*		*P-value*
		Adequate	*Inadequate*	
Experience	***(N=184)***	**138 (75.00%)**	**46 (25.00%)**	**0.397**
< 1 year	*(n=11)*	7 (5.07%)	4 (8.70%)	
1 to 5 years	*(n=31)*	21 (15.22%)	10 (21.74%)	
6 to 10 years	*(n=23)*	16 (11.59%)	7 (15.22%)	
11 to 15 years	*(n=29)*	25 (18.12%)	4 (8.70%)	
> 15 years	*(n=90)*	69 (50.00%)	21 (45.65%)	

There was more evidence of adequate knowledge (75.00%, n=138/184) than inadequate knowledge levels (25.00%, n=46/184) according to years of experience in the group as a whole. The respondents with 11 to 15 years of experience after registration/enrolment had the highest adequate knowledge level ratio at 86.21% (n=25/29), followed by those with more than 15 years experience at 76.67% (n=69/90). Conversely, 36.36% (n=4/11) of those respondents with less than 1 year of experience reported inadequate knowledge levels, the highest ratio amongst the five groupings. Amongst the 138 respondents reporting an adequate knowledge level, 69 (50.00%) had more than 15 years of experience. Similarly amongst the 46 respondents who reported inadequate knowledge levels, those with more than 15 years of experience were in the majority (45.65%, n=21).

The Chi-squared test revealed that years of experience after registration/enrolment was not significantly associated with self-reported knowledge scores (p=0.397).

4.4.2.5 The association between day/night shift and the self-reported record keeping knowledge scores

The majority of the 179 respondents who indicated the shift they worked most frequently in the preceding 12-months, reported adequate knowledge levels relative to record keeping, with 136 (75.98%) respondents scoring between 14 and 23 points on the 23-point knowledge scale. The remaining 43 respondents (24.02%) scored between 0 and 13 points, resulting in inadequate knowledge levels being reported (Table 4.20).

TABLE 4.20: Frequency table reflecting the self-reported knowledge scores according to the variable: Day/night shift

Variable		*Frequency of self-reported Knowledge*		*P-value*
		Adequate	*Inadequate*	
Day/night shift	***(N=179)***	**136 (75.98%)**	**43 (24.02%)**	**0.078**
Day duty	*(n=131)*	104 (76.47%)	27 (62.79%)	
Night Duty	*(n=48)*	32 (23.53%)	16 (37.21%)	

A predominantly adequate knowledge level was evident amongst the respondents working both day and night duty. Those respondents working mostly day duty reported the highest ratio of adequate knowledge levels, at 79.39% (n=104/131). The highest inadequate knowledge level ratio was reported by those respondents working mostly night duty, at 33.33% (n=16/48). Amongst the 136 respondents reporting adequate knowledge levels, 104 (76.47%) worked mainly day duty, while of the 43 who reported inadequate knowledge levels, 27 (62.79%) worked mainly day duty.

The Chi-squared test revealed that the day/night shift was not significantly associated with self-reported knowledge levels (p=0.078).

4.4.2.6 The association between the practice discipline and the self-reported record keeping knowledge scores

Within the four practice disciplines (n=185), the majority of the respondents reported adequate knowledge levels relative to record keeping, with 138 (74.59%) respondents scoring between 14 and 23 points on the 23-point knowledge scale. The remaining 47 respondents (25.41%) scored between 0 and 13 points, resulting in inadequate knowledge levels being reported (Table 4.21).

TABLE 4.21: Frequency table reflecting the self-reported knowledge scores according to the predetermined variable: Practice discipline

Variable		*Frequency of self-reported Knowledge*		*P-value*
		Adequate	*Inadequate*	
Practice Discipline	***(N=185)***	**138 (74.59%)**	**47 (25.41%)**	**0.803**
Surgical / IC Units	*(n=90)*	70 (50.72%)	20 (42.55%)	
Paediatric Units	*(n=20)*	14 (10.14%)	6 (12.77%)	
Maternity Units	*(n=17)*	12 (8.70%)	5 (10.64%)	
Medical Units	*(n=58)*	42 (30.43%)	16 (34.04%)	

In all four practice disciplines adequate knowledge levels were evident. The highest adequate knowledge level ratio was reported by the respondents working in the Surgical Units at 77.78% (n=70/90), followed by those respondents working in the Medical Units (72.41%, n=42/58). The highest ratio of respondents reporting inadequate knowledge levels, were amongst those working in the Paediatric Units, (30.00%, n=6/20). Amongst the 138 respondents reporting adequate knowledge levels, 70 (50.72%) worked in the Surgical Units. Of the 47 respondents who reported inadequate knowledge levels, 42.55% (n=20) also worked in the Surgical Units.

The Chi-squared test revealed that the practice discipline was not significantly associated with self-reported knowledge levels (p=0.803).

4.4.2.7 Univariate logistic regression analyses of the significant variable related to knowledge

Considering that category of nurse was the only variable significantly associated with the knowledge levels of respondents, only a univariate logistic regression analysis was done to determine the inter-category relationships (Table 4.22).

TABLE 4.22: Univariate logistic regression analyses of the significant variable related to knowledge

Variable	*Univariate analysis*		
	Odds Ratio	*95% CI*	*P-value*
Category of nurse			**0.002**
ENAs	4.179	1.873-9.321	0.000
ENs	1.977	0.810-4.827	0.135
RNs	1	-	0.000

Overall, the univariate analysis confirmed that category of nurse (p=0.002) was significantly associated with the knowledge levels of the respondents. The odds of respondents from the ENA category having inadequate knowledge levels were 4.179 times greater than the odds of RN respondents having inadequate knowledge levels (95% CI, 1.873-9.321). The odds of ENs having inadequate knowledge levels were 1.977 times greater than the odds of RNs having inadequate knowledge levels (95% CI, 0.810-4.827). However, the latter was not statistically significant (p=0.135).

Adequate knowledge levels relative to record keeping were evident amongst the majority of the respondents. Self-reported knowledge levels were associated significantly only with category of nurse. ENAs and ENs were more likely to have

inadequate knowledge levels when compared to RNs. In the next section, the practice behaviour related findings will be presented.

4.4.3 Analysis of practice behaviour-related data

The aim of study objective 1.9.2 was to describe and compare respondents' self-reported practice behaviour relative to record keeping against predetermined measurement scales (questions 50 and 52 to 65), while the aim of study objective 1.9.3 was to establish whether there is a significant association between selected variables and record keeping practice behaviour. The mean practice behaviour score was 15.29 (out of a possible 21), the median 15.29 and the mode 16.

The respondents' practice behaviour related score levels are described in terms of two categories, being acceptable or unacceptable, based on the 25th percentile practice behaviour score statistic (Table 4.6). The 1st quartile was chosen as the inter-category boundary due to the asymmetrical distribution of the practice behaviour scores (Figure 4.1).

4.4.3.1 The association between category of nurse and self-reported record keeping practice behaviour scores

The majority of the 183 respondents, who indicated their registration/enrolment category, reported acceptable levels of record keeping practice behaviour, with 125 (68.31%) respondents scoring between 15 and 21 points on the 21-point practice behaviour scale. The remaining 58 respondents (31.69%) scored between 0 and 14 points, resulting in unacceptable levels of practice behaviour being reported (Table 4.23).

TABLE 4.23: Frequency table reflecting the self-reported practice behaviour scores according to the variable: Category of nurse

Variable		*Frequency(and ratio) of self-reported Practice Behaviour*		*P-value*
		Acceptable	*Unacceptable*	
Category of nurse	***(N=183)***	**125 (68.31%)**	**58 (31.69%)**	**0.033**
RNs	*(n=92)*	69 (55.20%)	23 (39.66%)	
ENs	*(n=42)*	22 (17.60%)	20 (34.48%)	
ENAs	*(n=49)*	34 (27.20%)	15 (25.86%)	

There was more evidence of acceptable levels of practice behaviour (68.31%, n=125/183) than unacceptable levels of practice behaviour (31.69%, n=58/183) in the group as a whole. RNs reported the highest ratio of acceptable practice behaviour at 75.00% (n=69/92), followed by ENAs at 69.39% (n=34/49). In the EN

category, only 52.38% (n=22/42) of the respondents reported an acceptable level of practice behaviour. ENs reported the highest ratio of unacceptable practice behaviour at 47.62% (n=20/42). Amongst the 125 respondents reporting an acceptable level of practice behaviour, 69 (55.20%) were RNs. Similarly, of the 58 respondents who reported an unacceptable level of practice behaviour, the RNs were in the majority (39.66%, n=23).

The Chi-squared test revealed that there was a significant association between category of nurse and the self-reported record keeping practice behaviour scores (p=0.033), meaning that RNs' responses indicated more acceptable practice behaviour than both ENs and ENAs.

4.4.3.2 The association between gender and self-reported record keeping practice behaviour scores

The majority of the 183 respondents, who indicated their gender, reported acceptable levels of record keeping practice behaviour, with 126 (68.85%) respondents scoring between 15 and 21 points on the 21-point practice behaviour scale. The remaining 57 respondents (31.15%) scored between 0 and 14 points, resulting in unacceptable levels of practice behaviour being reported (Table 4.24).

TABLE 4.24: Frequency table reflecting the self-reported practice behaviour scores according to the variable: Gender

Variable		*Frequency (and ratio) of self-reported Practice- Behaviour*		*P-value*
		Acceptable	*Unacceptable*	
Gender	***(N=183)***	**126 (68.85%)**	**57 (31.15%)**	**0.244**
Female	*(n=175)*	119 (94.44%)	56 (98.25%)	
Male	*(n=8)*	7 (5.56%)	1 (1.75%)	

Acceptable levels of practice behaviour were evident amongst both male and female respondents. The male respondents reported a higher ratio of acceptable practice behaviour at 87.50% (n=7/8), while 68.00% (n=119/175) of the female respondents reported the same level. Amongst the 126 respondents reporting acceptable levels of practice behaviour, 119 (94.44%) were female. Similarly, of the 57 respondents who reported unacceptable levels of practice behaviour, 98.25% (n=56) were female.

The Chi-squared test revealed that gender was not significantly associated with self-reported record keeping practice behaviour scores (p=0.244).

4.4.3.3 The association between hospital sector and self-reported record keeping practice behaviour scores

Of the 185 respondents who indicated the hospital sector in which they were active, the majority reported acceptable levels of record keeping practice behaviour, with 126 (68.11%) scoring between 15 and 21 points on the 21-point practice behaviour scale. The remaining 59 respondents (31.89%) scored between 0 and 14 points, resulting in unacceptable levels of practice behaviour being reported (Table 4.25).

TABLE 4.25: Frequency table reflecting self-reported practice behaviour scores according to the variable: Hospital Sector

Variable		*Frequency (and ratio) of self-reported Practice- Behaviour*		*P-value*
		Acceptable	*Unacceptable*	
Hospital Sector	***(N=185)***	**126 (68.11%)**	**59 (31.89%)**	**0.867**
Government	*(n=102)*	70 (55.56%)	32 (54.24%)	
Private	*(n=83)*	56 (44.44%)	27 (45.76%)	

In the main, acceptable levels of practice behaviour was reported in both hospital sectors. The Government sector hospitals reported a higher ratio of acceptable practice behaviour at 68.63% (n=70/102), while the Private sector hospitals reported a 67.47% (n=56/83) ratio. Of the 126 respondents reporting acceptable levels of practice behaviour, 55.56% (n=70) were from Government hospitals. Similarly, of the 59 respondents who reported unacceptable levels of practice behaviour, 54.24% (n=32) were from the Government sector hospitals.

The Chi-squared test revealed that hospital sector was not significantly associated with self-reported record keeping practice behaviour scores (p=0.867).

4.4.3.4 The association between years of experience and self-reported record keeping practice behaviour scores

The majority of the 184 respondents who indicated their years of experience after registration/enrolment, reported acceptable levels of record keeping practice behaviour. In total, 126 (68.48%) respondents scored between 15 and 21 points on the 21-point practice behaviour scale. The remaining 58 respondents (31.52%) scored between 0 and 14 points, resulting in unacceptable levels of record keeping practice behaviour being reported (Table 4.26).

TABLE 4.26: Frequency table reflecting self-reported practice behaviour scores according to the variable: Years of experience after registration/enrolment

Variable		*Frequency (and ratio) of self-reported Practice- Behaviour*		*P-value*
		Acceptable	*Unacceptable*	
Experience	***(N=184)***	**126 (68.48%)**	**58 (31.52%)**	**0.315**
< 1 year	*(n=11)*	8 (6.35%)	3 (5.17%)	
1 to 5 years	*(n=31)*	23 (18.25%)	8 (13.79%)	
6 to 10 years	*(n=23)*	17 (13.49%)	6 (10.34%)	
11 to 15 years	*(n=29)*	15 (11.90%)	14 (24.14%)	
> 15 years	*(n=90)*	63 (50.00%)	27 (46.55%)	

Acceptable levels of record keeping practice behaviour were evident in all five groupings. The respondents with 1 to 5 years of experience after registration/enrolment had the highest ratio of acceptable practice behaviour at 74.19% (n=23/31), closely followed by those with 6 to 10 years of experience, at 73.91% (n=17/23). Conversely, 48.28% (n=14/29) of those respondents with 11 to 15 years of experience, reported unacceptable levels of practice behaviour, the highest ratio amongst the five groupings. Amongst the 126 respondents reporting acceptable levels of practice behaviour, 63 (50.00%) had more than 15 years of experience. Similarly, of the 58 respondents who reported unacceptable levels of practice behaviour, 46.55% (n=27) had more than 15 years of experience.

The Chi-squared test revealed that years of experience after registration/enrolment was not significantly associated with self-reported record keeping practice behaviour scores (p=0.315).

4.4.3.5 The association between day/night shift and self-reported record keeping practice behaviour scores

The majority of the 179 respondents who indicated the shift they worked most frequently in the preceding 12-months, reported acceptable levels of record keeping practice behaviour, with 122 (68.16%) respondents scoring between 15 and 21 points on the 21-point practice behaviour scale. The remaining 57 respondents (31.84%) scored between 0 and 14 points, resulting in unacceptable levels of practice behaviour being reported (Table 4.27).

TABLE 4.27: Frequency table reflecting self-reported practice behaviour scores according to the variable: Day/night shift

Variable		*Frequency (and ratio) of self-reported Practice- Behaviour*		*P-value*
		Acceptable	*Unacceptable*	
Day/night shift	***(N=179)***	**122 (68.16%)**	**57 (31.84%)**	**0.325**
Day duty	*(n=131)*	92 (75.41%)	39 (68.42%)	
Night Duty	*(n=48)*	30 (24.59%)	18 (31.58%)	

A predominantly acceptable level of practice behaviour was evident amongst the respondents working both day and night duty. Those respondents working mostly day duty reported the highest ratio of acceptable practice behaviour, at 70.23% (n=92/131). The highest unacceptable practice behaviour ratio was reported by those respondents working mostly night duty, at 37.50% (n=18/48). Amongst the 122 respondents reporting acceptable levels of practice behaviour, 75.41% (n=92) worked mainly day duty, while of the 57 who reported unacceptable levels of practice behaviour, 39 (68.42%) worked mainly day duty.

The Chi-squared test revealed that day/night shift was not significantly associated with self-reported record keeping practice behaviour scores (p=0.325).

4.4.3.6 The association between the practice discipline and self-reported record keeping practice behaviour scores

Within the four practice disciplines (n=185), the majority of the respondents reported acceptable levels of record keeping practice behaviour, with 126 (68.11%) respondents scoring between 15 and 21 points on the 21-point practice behaviour scale. The remaining 59 respondents (31.89%) scored between 0 and 14 points, resulting in unacceptable levels of record keeping practice behaviour being reported (Table 4.28).

TABLE 4.28: Frequency table reflecting the self-reported practice behaviour scores according to the variable: Practice discipline

Variable		*Frequency (and ratio) of self-reported Practice- Behaviour*		*P-value*
		Acceptable	*Unacceptable*	
Practice Discipline	***(N=185)***	**126 (68.11%)**	**59 (31.89%)**	**0.074**
Surgical / IC Units	*(n=90)*	61 (48.41%)	29 (49.15%)	
Paediatric Units	*(n=20)*	14 (11.11%)	6 (10.17%)	
Maternity Units	*(n=17)*	16 (12.70%)	1 (1.69%)	
Medical Units	*(n=58)*	35 (27.78%)	23 (38.98%)	

In all four practice disciplines, adequate knowledge levels were evident. The highest ratio of acceptable record keeping practice behaviour was reported by the respondents working in the Maternity Units (94.12%, n=16/17), followed by those respondents working in the Paediatric Units (70.00%, n=14/20). The highest ratio of respondents reporting unacceptable record keeping practice behaviours, were amongst those working in the Medical Units, (39.66%, n=23/58). Amongst the 126 respondents reporting unacceptable levels of practice behaviour, 48.41% (n=61) worked in the Surgical Units. Similarly, of the 59 respondents who reported unacceptable levels of practice behaviour, 49.15% (n=29) worked in Surgical Units.

The Chi-squared test revealed that the practice discipline was not significantly associated with the self-reported record keeping practice behaviour scores (p=0.074).

4.4.3.7 Univariate logistic regression analyses of the significant variable associated with record keeping practice behaviour scores

Considering that category of nurse was the only variable significantly associated with the practice behaviour of respondents, only an univariate logistic regression analysis was done to determine the inter-category relationships (Table 4.29).

TABLE 4.29: Univariate logistic regression analyses of the significant variables related to practice behaviour

Variable	*Univariate analysis*		
	Odds Ratio	*95% CI*	*P-value*
Category of nurse			**0.036**
ENAs	1.324	0.613-2.856	0.475
ENs	2.727	1.266-5.877	0.010
RNs	1	-	0.000

The univariate analysis confirmed that nurse category (p=0.036) had a significant influence on the record keeping practice behaviour of the respondents. The odds of respondents from the EN category having an unacceptable level of practice behaviour were 2.727 times greater than the odds of RN respondents having an unacceptable level of practice behaviour (95% CI, 1.266-5.877).

Acceptable levels of record keeping practice behaviour were evident amongst the majority of the respondents. Self-reported practice behaviour was associated significantly only with category of nurse. ENs were more likely to have an unacceptable level of practice behaviour, compared to RNs. Further analyses and findings relative to study objective 1.9.4, aiming to describe selected self-reported

practice behaviours relative to record keeping, approaches to record keeping, management support and methods of correcting written mistakes and making late entries (questions 50, and 52 to 65) are presented next.

4.4.4 Record keeping approach

Question 50 on the questionnaire aimed to determine the record keeping approaches[7] utilised by the respondents, by listing options. Although there is no correct or incorrect approach when nurses keep written patient records, the findings showed that the majority of respondents (56.45%, n=105) make use of a combination of record keeping approaches (Table 4.30).

TABLE 4.30: Frequency table reflecting the record keeping approach used by the respondents

Record keeping approach	*Frequency*	*%*
A systems approach	24	12.90%
A problem based approach	33	17.74%
An activities of daily living approach	15	8.06%
A combination of approaches	105	56.45%
No specific approach – just record what comes to mind	0	0.00%
*Other**	3	1.62%
NR/IR	6	3.23%
TOTAL	**186**	**100%**

*The "other" approaches were described as the "Psychodynamic approach" (0.54%, n=1), the "SOAP"-system, which is a format used with the 'Problem Orientated Record' charting system (0.54%, n=1) and the unknown "Watch and Observe" approach (0.54%, n=1).

4.4.5 Perceptions of support for record keeping

Question 52 to 56 measured the nurses' perceptions of the support they received from hospital management in order to facilitate effective record keeping. The analysis was based on the availability of formal and in-formal in-service training, policy documents, audits and adequate supervision (Table 4.31).

[7] The approach utilised is influenced by the nursing philosophy and/or theoretical framework, the documentation system used and the record keeping policy framework applied at a specific hospital.

TABLE 4.31: Nurses' perceptions of the support they receive in order to facilitate effective record keeping

Question	*Number of responses (with percentage)*				
	NR/IR	*Yes*	*No*	*Unsure*	*Total*
Question 52: I have received formal in-service training (e.g. a lecture) regarding record keeping, at least once in the past 6 months.	5 (2.69%)	71 (38.17%)	109 (58.60%)	1 (0.54%)	**186 (100%)**
Question 53: In the hospital where I work, there is no policy document / guideline available on record keeping.	6 (3.23%)	32 (17.20%)	138 (74.19%)	10 (5.38%)	**186 (100%)**
Question 54: Audits that evaluate record keeping and nursing care are conducted regularly in the ward / department where I work.	8 (4.30%)	135 (72.58%)	32 (17.20%)	10 (5.38%)	**186 (100%)**
Question 55: I have not received informal in-service training (e.g. on-the-spot training) regarding record keeping in the past month.	8 (4.30%)	67 (36.02%)	110 (59.14%)	1 (0.54%)	**186 (100%)**
Question 56: There is no supervision in the ward / department where I work, to ensure good record keeping practices.	6 (3.23%)	46 (24.73%)	133 (71.51%)	1 (0.54%)	**186 (100%)**
LEGEND: NR = No response; IR = Inadequate response					

In response to the question: *"I have received formal in-service training (e.g. a lecture) regarding record keeping, at least once in the past 6 months"*, 58.60% (n=109) of the respondents disagreed. Concerning informal in-service training such as on-the-spot training (Question 55), 59.14% (n=110) indicated that it did occur. Furthermore, 74.19% (n=138) of the respondents indicated that record keeping policy documents were available and 17.20% (n=32) indicated that it was not available (Question 53).

It was confirmed by 72.58% (n=135) of the respondents that record keeping audits are conducted regularly in the ward or department (Question 54), and 71.51% (n=133) disagreed with the statement that there is no supervision where they worked (Question 56).

4.4.6 Self-reported record keeping practice behaviours and experiences

Questions 57 to 63 assessed respondents' self-reported practice behaviour and experiences concerning record keeping. The findings (Table 4.32) showed that 77.95% (n=145) of respondents 'always' read what other nurses have written (Question 57), while 80.10% (n=149) 'always' wrote in the progress notes themselves (Question 58).

TABLE 4.32: Frequency of self-reported record keeping practice behaviour

Question	*Number of responses (with percentage)*				
	Always	*Sometimes*	*Never*	*Inadequate or No response*	*Total*
Question 57: I read (at least once a day) what other nursing personnel have recorded in the patient notes.	145 (77.95%)	35 (18.82%)	3 (1.61%)	3 (1.61%)	186 (100%)
Question 58: I write in the patient's progress notes, at least once a day.	149 (80.10%)	21 (11.29%)	9 (4.84%)	7 (3.76%)	186 (100%)
Question 59: I read what other nursing personnel have recorded, because I am not sure what to write.	7 (3.76%)	31 (16.66%)	146 (78.49%)	2 (1.08%)	186 (100%)
Question 60: I look at what other nursing personnel have recorded regarding patients, as it gives me more information about the patients and therefore I can provide better care.	111 (59.68%)	54 (29.03%)	14 (7.52%)	7 (3.76%)	186 (100%)
Question 61: When writing a patient's progress notes, I base my findings on the problems or needs identified in a Nursing Care Plan.	119 (63.98%)	44 (23.65%)	18 (9.68%)	5 (2.68%)	186 (100%)
Question 62: I make use of a Nursing Care Plan drafted specifically for the patient(s) I am assigned to.	105 (56.45%)	46 (24.73%)	29 (15.59%)	6 (3.22%)	186 (100%)
Question 63: I leave lines, or part of a line, open without drawing a line through it.	10 (5.38%)	23 (12.37%)	148 (79.56%)	5 (2.68%)	186 (100%)

The majority of the respondents (77.95%, n=145) indicated that they read what other nurses have recorded in patient notes (question 57), and the majority (59.68%, n=111) did so in order to provide better care (question 60) rather than it being an indication (78.49%, n=146) that they lacked confidence in writing progress reports (question 59). Nursing Care Plans formed the basis of their record keeping practice behaviour, as 63.98% (n=119) and 56.45% (n=105) of the respondents respectively confirmed that Nursing Care Plans were 'always' used as a problem orientated data base and that patient specific Nursing Care Plans were drafted (question 61). The majority of respondents (79.56%, n=148) confirmed that they 'never' left lines, or parts thereof open (question 63), indicating adherence to this record keeping guideline.

Questions 64 and 65 explored the practical application of two record keeping principles applied by nurses in everyday record keeping practice: Correcting written mistakes and making late entries (Table 4.33), both with major medico-legal implications if not executed correctly.

TABLE 4.33: Frequency table indicating the respondents' self-reported methods of correcting written mistakes and making late entries

Option	*Frequency*	%
Question 64: Correcting written mistakes	***186***	***100%***
Correct option (1,8,10, 11 & 12)	5	2.69%
Incorrect option (any other combination)	174	93.55%
NR / IR	7	3.76%
Question 65: Late entry	***186***	***100%***
Correct option (Option 2)	135	72.58%
Incorrect options	39	20.97%
NR / IR	12	6.45%

Five (2.69%) respondents indicated an acceptable method of correcting an error in a patient record, as recommended in local and international literature, that is deleting the mistake with a single line, signing it and including a legal designation, inserting the date and recording the correct information (Booyens & Uys, 1989:26-28; Deane et al., 1986:175; Dimond, 2005a:461; Documentation in Action, 2006:71; SANA, 1994:50; Troskie, 2002:347; Teytelman, 2002:123, 124; Wood, 2003:27). The incorrect method was indicated by 93.55% (n=174). Conversely, the majority of the respondents (72.58%, n=135) reported the correct method of recording a late entry, as measured by question 65.

In this section, the record keeping practice behaviours of the respondents were explored, confirming that a combination of approaches was used when keeping records. Despite the lack of formal in-service training regarding record keeping, policies to support implementation were available, supported by regular record keeping audits and supervision. Furthermore, the respondents confirmed that they valued the records kept by nurses as these provided them with information regarding the care and progress of the patient, in the majority of cases based on a nursing care plan. However, the respondents did not appear to implement the generally recommended principles for correcting written errors in nursing notes. Next, the findings related to respondents' perceptions of published barriers to effective record keeping for a local context are presented.

4.5 Analysis of respondents' perception of barriers to effective record keeping

The aim of objective 1.9.5 was to determine respondents' ranking of published barriers to effective record keeping for a local context. The ten barriers, which had to be ranked by the respondents from 1 to 10, with 1 having the greatest influence,

and 10 the one with the least influence on effective record keeping, are reflected in Table 4.34.

TABLE 4.34: Data reflecting the mean ranking scores of the barriers to effective record keeping as ranked by all respondents

Ranking	*Description of the barriers to effective record keeping*	*Mean Ranking Score**
1	Interruptions.	3.74
2	Having too little time to write down everything that must be recorded.	4.47
3	Lack of confidence by nursing personnel regarding their ability to keep accurate records.	5.17
4	Having to record the same information over-and-over.	5.33
5	Too many forms to complete or use.	5.53
6	Not knowing what is expected with regards to record keeping.	5.60
7	Lack of sufficient (on-going) in-service training.	5.63
8	Not understanding the Nursing Process.	5.87
9	Not knowing what to record.	6.19
10	The inaccessibility of documentation.	7.18
*The closer the mean ranking score is to 1, the greater the barrier's influence on effective record keeping. The closer the mean ranking scores is to 10, the least the barrier's influence on effective record keeping.		

A comparison of the findings for Government and Private Hospitals, applying the same mean ranking method of analysis, is reflected in Table 4.35.

TABLE 4.35: Data reflecting the mean ranking scores of the barriers to effective record keeping for Government and Private Hospitals

Ranked description of the barriers to effective record keeping for Government Hospitals	***Mean ranking score* (overall ranking position)***		***Ranked description of the barriers to effective record keeping for Private Hospitals***
	Gov.	***Priv.***	
Interruptions.	3.46 (1)	3.68 (1)	Having too little time to write down everything that must be recorded.
Lack of confidence by nursing personnel regarding their ability to keep accurate records.	4.84 (2)	4.12 (2)	Interruptions.
Having too little time to write down everything that must be recorded.	5.06 (3)	4.60 (3)	Having to record the same information over-and-over.
Not knowing what is expected with regards to record keeping.	5.33 (4)	4.84 (4)	Too many forms to complete or use.
Lack of sufficient (on-going) in-service training.	5.46 (5)	5.62 (5)	Lack of confidence by nursing personnel regarding their ability to keep accurate records.
Having to record the same information over-and-over.	5.88 (6)	5.68 (6)	Not understanding the Nursing Process.
Not knowing what to record.	5.99 (7)	5.86 (7)	Lack of sufficient (on-going) in-service training.
Not understanding the Nursing Process.	6.01 (8)	5.96 (8)	Not knowing what is expected with regards to record keeping.
Too many forms to complete or use.	6.04 (9)	6.46 (9)	Not knowing what to record.
The inaccessibility of documentation.	6.99 (10)	7.44 (10)	The inaccessibility of documentation.
*The closer the mean ranking score is to 1, the greater the barrier's influence on effective record keeping. The closer the mean ranking scores is to 10, the least the barrier's influence on effective record keeping.			

The rank order for the Government Hospitals differed in each instance from those for the Private hospitals except in one instance where 'The inaccessibility of documentation' was ranked as the least important barriers for both sectors.

'Interruptions' was ranked as the barrier having the greatest influence on effective record keeping in Government hospitals, but ranked second in the Private hospitals. 'Having too little time to write down everything that must be recorded' was ranked first in Private hospitals and third in Government hospitals. 'Lack of confidence by nursing personnel regarding their ability to keep accurate records' was ranked second in the Government hospitals, but fifth in the Private hospitals.

For Government sector respondents, the remaining barriers to effective record keeping, were ranked from the most important to the least important, as follows: Insufficient time, too few guidelines (that is 'not knowing what is expected with regards to record keeping'), repetitive entries, lack of knowledge about record keeping, not understanding the nursing process and having too many forms to complete.

For the Private sector respondents' the ranked order of barriers, from the most important to the least important, was different, as follows: Repetitive entries, having too many forms to complete, lack of confidence in keeping accurate records, not understanding the nursing process, lack of ongoing in-service training, too few guidelines (that is 'not knowing what is expected with regards to record keeping') and lack of knowledge about record keeping.

There are published barriers to effective record keeping, but these are perceived to be different in the two hospital sectors, except for the inaccessibility of documentation, which was regarded as the least important barrier in both hospital sectors.

4.6 Chapter summary

In this chapter the findings and statistical analyses of the data gathered from the survey questionnaire were presented. The findings were based on the research questions and objectives and presented in figures and tables. The findings show that 94.62% (n=176) of respondents were female, the mean age was 42.26 years, 48.92% (n=91) had more than 15 years of experience after registration or enrolment, 54.85% (n=102) worked in Government hospitals, comprising 53 (51.96%) RNs, 25 (24.51%) ENs and 22 (21.57%) ENAs), and 45.16% (n=84) worked in Private Hospitals, comprising 39 (46.43%) RNs, 17 (20.24%) ENs and 28 (33.33%) ENAs. Most respondents (18.82%, n=35) worked in Surgical Units, the respondents worked mainly on day duty 70.43% (n=131) and 15.05% (n=28) of the RNs functioned at a basic level having received no further functional promotion after registration.

Predominantly positive attitudes towards record keeping were reported. These self-reported attitudes were not significantly associated with category of nurse (p=0.271), gender (p=0.861), years of experience after registration/enrolment (p=0.950) or practice discipline (p=0.268), but were significantly associated with hospital sector (p=0.021) and day/night shift worked (p=0.017).

The majority of the respondents (n=137, 74.86%) reported adequate knowledge levels relative to record keeping. Knowledge levels were associated significantly with category of nurse (p=0.002), but not with hospital sector (p=0.184), gender (p=0.399), years of experience after registration/enrolment (p=0.397), day/night shift (p=0.078) or practice discipline (p=0.803). The odds of respondents from the ENA category having inadequate knowledge levels were 4.179 times greater than the odds of RN respondents having an inadequate knowledge level (95% CI, 1.873-9.321, p=0.000). The odds of ENs having an inadequate knowledge level were

1.977 times greater than the odds of RNs having inadequate knowledge levels (95% CI, 0.810-4.827). However, the latter was not statistically significant.

Acceptable levels of self-reported record keeping practice behaviour were evident in all three of the nurse categories, with the majority of the 183 respondents (n=125, 68.31%) reporting acceptable levels of practice behaviour. RNs reported the highest ratio of acceptable practice behaviour at 75.00% (n=69), followed by ENAs at 69.39% (n=34). In the EN category, 52.38% (n=22) reported an acceptable level of practice behaviour. Practice behaviour was associated significantly with category of nurse (p=0.033), but not with gender (p=0.244), hospital sector (p=0.867), years of experience after registration/enrolment (p=0.315), day/night shift (p=0.325) or practice discipline (p=0.074).

When keeping records, the majority of respondents (56.45%, n=105) made use of a combination of record keeping approaches and 72.58% (n=135) of the respondents reported that record keeping audits were conducted regularly, with 71.51% (n=133) attributing their good record keeping practices to the availability of supervision.

Concerning self-reported record keeping practice behaviours and experiences, 77.95% (n=145) of the respondents ‘always’ read what other nurses have written, while 80.10% (n=149) ‘always’ wrote in the progress notes themselves.

The ranking of published barriers to effective record keeping for the Government Hospitals differed in each instance from those for the Private Hospitals, except in one instance where ‘The inaccessibility of documentation’ was ranked the least important barrier for both sectors. In the next chapter, the findings are discussed.

CHAPTER 5

DISCUSSION OF FINDINGS

5.1 Introduction

In this chapter the findings reported on in the previous chapter are discussed with reference to relevant and available literature reviewed in Chapter 2, while aiming to expand on the main trends and data patterns uncovered (Mouton, 2001:124).

5.2 Discussion of the findings

The 186 analysed questionnaires provided sufficient data to enable the researcher to answer the research question adequately. The discussion is guided by the primary and secondary research aims respectively:

- To describe nurses' self-reported attitudes towards, knowledge of and practice behaviours regarding record keeping in six selected Cape Town Metropole Hospitals; and
- To describe the association between selected variables and self-reported attitudes, knowledge and practice behaviours relative to record keeping,

and by the study objectives:

- To describe and compare the demographic and professional profile characteristics of the respondents.
- To describe and compare respondents' self-reported attitude towards, knowledge of and practice behaviour relative to record keeping, against predetermined measurement scales.
- To establish whether there is a significant association between selected variables: category of nurse, gender, hospital sector, years of experience, day/night shift and practice discipline, and respondents' self-reported:
    - attitude towards record keeping;
    - knowledge of record keeping; and
    - record keeping practice behaviour.
- To describe selected self-reported practice behaviours relative to record keeping: management support, approaches to record keeping, methods of correcting mistakes and making late entries.

- To determine respondents' ranking of published barriers to effective record keeping for a local context.

The randomly sampled respondents, stratified according to category of nurse and working at six purposively selected hospitals, were included in the descriptive cross-sectional survey. A questionnaire was designed to collect data which was analysed using the GenStat® and SPSS® software programs. A total of 186 of the 354 (52.54%) self-administered questionnaires distributed were utilised for data analysis.

Response rates in surveys are problematic. As a general rule, response rates below 50% are considered poor and above 90% are excellent. Furthermore, generalising the findings may be restricted if the response rate is below 75%. In mailed and self-administered questionnaire surveys, a response rate of 10% to 50% is often common (Neuman, 1997:246–251). In this study, purposive sampling limited the generalisability of the findings, therefore the 75% prerequisite did not apply, and the 52.54% (excluding outliers) to 54.23% (including outliers) response rate was considered as adequate for data analysis.

5.2.1 Discussion related to demographic and professional profile

There is a trend-correlation between the study findings and the national nursing gender distribution, where 92.51% (n=196 877/212806) of registered and enrolled nurses are female and 7.49% (n=15929/212806) are male. The gender profile of the respondents (Table 4.2) also reflects the gender profile of nurses in the Western Cape. SANC statistics (SANC, 2008b) show that 95.00% (n=25658/27008) of the registered and enrolled nursing populations in the Western Cape are female. The male respondents represented 4.30% (n=8/186) of the sample, which is not dissimilar to the SANC figures for males in this region, which is 5.00% (n=1350/27008).

Although no age distribution statistics for the Western Cape or Cape Town Metropole nurses are available, the SANC's national age-related statistics, reflecting that 31569 (14.83%) nurses on its registers and rolls are between 40 to 44 years of age, support the study findings where the average age of the respondents was 42.26 years (Table 4.2). Nationally, the number of nurses in this age group is only surpassed marginally by the 45 to 49 age group, comprising 33016 nurses (15.51%). The remaining 69.66% is split between 34.60% of nurses who are between 50 and 69+ years of age and 35.08% of nurses who are under 40 years of age (SANC, 2008c). This national profile indicates that 65.00% of the nursing workforce is therefore over the age of 40. There is a growing concern that the current nursing population is ageing without attracting sufficient numbers of young recruits.

The survey findings that the majority of respondents (76.88%, n=143/186) had more than six years of experience after registration or enrolment (Table 4.2) indicates a workforce of reasonably experienced nurses. The lead nurses (RNs) were in the majority (52.82%, n=75/142). Of the respondents who had more than 15 years of experience (48.92%, n=91/186), the majority (71.43%, n=65/91) were RNs and ENs (who are eligible for accelerated RN bridging programmes), indicating a workforce of 48.92% of experienced lead nurses and potential lead nurses (Table 4.2).

The general ratio of RNs:ENs:ENAs in the survey sample was 49:23:27 (Table 4.2), which is marginally different from that for the Western Cape (52:18:30), and nationally (51:20:29) (SANC, 2008b). A general trend is evident, namely that RNs are, and should be, in the majority, as they are the lead nurses responsible for planning nursing care and ensuring planned patient outcomes. ENs were in the minority, but exceeded regional and national ratios, with the ENA ratio being lower than the regional and national ratios.

The self-reported data discussed in the following section were analysed and described against predetermined measurement scales. The respondents therefore did not rate their own attitude, knowledge or practice behaviour relative to record keeping, but only reported it.

5.2.2 Discussion related to self-reported attitudes towards record keeping

There was a predominantly positive attitude (71.74%, n=132/184) towards record keeping amongst respondents (Table 4.7), congruent with the findings of Darmer et al. (2004:330), where the participants also *"demonstrated a positive attitude…"* towards record keeping prior to participating in the implementation of a new nursing documentation system.

Contrary to other reported research findings, that nurses perceive record keeping negatively, as secondary to direct patient care and of limited value to other nurses and health care professionals (Cheevakasemsook et al., 2006:371; Howse & Bailey, 1992:376; Kärkkäinen & Eriksson, 2005:206; Martin et al., 1999:349; Pelletier et al., 2005:43-44; Tapp, 1990:237), the survey respondents replied as follows to relevant statements, thus re-enforcing their positive attitude, although it is probably linked to a high degree of social desirability:

- 86.02% (n=160) either *'Strongly disagreed'* or *'Disagreed'* with the statement that 'Record keeping is not an essential element of effective care delivery';
- 95.16% (n=177) either *'Strongly disagreed'* or *'Disagreed'* with the statement that 'Record keeping is just another unnecessary task';

- 95.16% (n=177) either *'Strongly agreed'* or *'Agreed'* with the statement that 'Record keeping is just as important as providing patient care'; and
- 96.77% (n=180) either *'Strongly agreed'* or *'Agreed'* with the statement that 'Nursing records facilitate communication between nursing personnel in the ward or department'.

Having discussed the general attitude related findings, the subsequent discussion will focus on the six independent variables: Category of nurse, gender, hospital sector, years of experience, day/night shift and practice discipline that were, or were not significantly associated with self-reported attitudes towards record keeping:

- Category of nurse: Statistically, there was no significant association (p=0.271, Table 4.8) between category of nurse and the respondents' self-reported attitude levels towards record keeping. Assuming that it is expected of RNs, who are the lead nurses, to have the most positive attitude towards record keeping, and to rank first amongst the nurse categories, it is re-assuring that they had the highest positive attitude ratio (75.00%, n=69/92). Alarmingly, ENs who are responsible for the bulk of 'hands-on' patient care and thus record keeping, had the least positive attitude ratio (61.90%, n=26/42). Having the least positive attitude ratio is of concern for patient safety as ENs work under the direct and indirect supervision of RNs according to their Scope of Practice (Regulation 2598 of The Nursing Act 33 of 2005).
- Gender: Statistically, there was no significant association (p=0.861, Table 4.9) between gender and the respondents' self-reported attitude levels towards record keeping. Due to the small number of male respondents (n=8/186), the gender-related findings cannot be generalised. Nursing is a female dominated profession and the study findings confirm this (Table 4.2).
- Hospital sector: Statistically, there was a significant association (p=0.021, Table 4.10) between hospital sector and the respondents' self-reported attitude levels towards record keeping. Government sector respondents displayed a more positive attitude ratio (78.43%, n=80/102) than Private sector respondents (63.10%, n=53/84). The reasons for Private sector respondents being 2.049 times more likely to have a negative attitude toward record keeping when compared to their counterparts in the Government sector (Table 4.14), needs further investigation.
- Experience: Generally, the respondents showed a positive attitude towards record keeping (71.89%, n=133/185) as shown in Table 4.11. Although

there was no significant association between this variable and the attitude levels of the respondents towards record keeping, it is interesting that the small group of respondents (n=9/11) with less than 1 year of experience after registration or enrolment had the highest positive attitude ratio (81.28%). The respondents with 6 to 10, 11 to 15 and more than 15 years of experience also displayed a positive attitude ratio as follows: 73.91% (n=17/23), 72.41% (n=21/29) and 70.32% (n=64/91).

- Day/night shift: Statistically, there was a significant association (p=0.017, Table 4.12) between day/night shift and the respondents' self-reported attitude level towards record keeping. The majority of respondents were on day duty (72.77%, n=131/180), and 77.10% (n=101/131) reported a positive attitude, more so than those who worked night duty (59.18%; n=29/49). Similarly, night duty personnel were 2.171 times more likely to have a negative attitude toward record keeping than those working mainly day duty (Table 4.14). Considering the slower pace on night duty, as there are no routine admissions and less time consuming procedures, it is expected that there would be more time for record keeping and that this would translate into a more positive attitude.
- Practice discipline: Although there was no statistically significant association between this variable and the attitude scores (p=0.268, Table 4.13), a variance of 23.83% was noted between the practice disciplines with the highest and lowest positive attitude ratio's, being Maternity Units (88.24%, n=15/17) and Medical Units (64.41%, n=38/59). This variance indicates that some attitudinal differences towards record keeping between practice disciplines do exist.

In summary: In keeping with one previous study (Darmer et al., 2004:330), the majority of respondents from the selected hospitals reported a positive attitude toward record keeping, which opposes other research findings (Cheevakasemsook et al., 2006:371; Howse & Bailey, 1992:376; Kärkkäinen & Eriksson, 2005:206; Martin et al., 1999:349; Pelletier et al., 2005:43-44; Tapp, 1990:237). There was a statistically significant difference in the reported attitudes between Government and Private Hospitals (p=0.021, Table 4.10) and between those respondents working day and night duty (p=0.017, Table 4.12). Statistically, attitude was not significantly associated with category of nurse, gender, years of experience or practice discipline. Next, the knowledge related findings will be discussed.

5.2.3 Discussion of knowledge related findings

The survey results show that the majority (74.86%, n=137/183) of the respondents had an adequate knowledge level (Table 4.16) when measured against predetermined measurement scales, similar to the self-reported beliefs in a previous study (Björvell et al., 2003:213), where the majority of RNs indicated that they had 'sufficient knowledge' regarding record keeping. A direct comparison and interpretation between the two studies is not possible because there was no explanation of measurement in the referenced study.

Having discussed the general knowledge related findings, the subsequent discussion will focus on the six independent variables: Category of nurse, gender, hospital sector, years of experience, day/night shift and practice discipline that were, or were not significantly associated with self-reported knowledge of record keeping.

- Category of nurse: Statistically, there was a significant association between category of nurse and record keeping knowledge levels (p=0.001, Table 4.16). In keeping with their respective Scopes of Practice (Regulation 2598 of the Nursing Act 33 of 2005), more RNs had adequate knowledge of record keeping (84.78%, n=78/92) than ENs (73.81%, n=31/42) and ENAs (57.14%, n=28/49). RNs are expected to achieve the highest score ratio for record keeping knowledge, as sub-professional nursing categories work under their direct and indirect supervision in terms of current South African legislation. In lieu of their Scope of Practice, ENs would be expected to rank second, above ENA's who have a more limited Scope of Practice (Regulation 2598 of the Nursing Act 33 of 2005).

  Although ENAs have a limited scope of practice, this includes record keeping, and considering that 42.86% (n=21/49) had inadequate knowledge, this has implications for their practice as ENAs are required to render and report elementary nursing care.

- Gender: Statistically, there was no significant association between gender and record keeping knowledge levels (p=0.399, Table 4.17). As with the attitude related data, the small number of male respondents (n=8) precludes generalisation of these findings.

- Hospital sector: Statistically, there was no significant association between hospital sector and record keeping knowledge levels (p=0.184, Table 4.18). Government sector respondents displayed a higher level of record keeping knowledge (78.43%, n=80/102) than Private sector respondents (69.88%, n=58/83). This is a surprising finding, considering that the Private sector

may be more conscious regarding the possibility of litigation than the Government sector. The Private sector treats predominantly 'paying clients' who are members of medical aid schemes, and therefore would have to fund law suits from profits (Bassett, 2004). The Government sector, treating predominantly indigent patients, is not less litigation conscious, but has access to government funding for law suits (Bassett, 2004). The finding is therefore unexpected, as it is assumed that the Private sector would direct more resources towards training their employees in sound record keeping practices which could refute negligence.

- Experience: Statistically, there was no significant association between years of experience after registration/enrolment and record keeping knowledge levels (p=0.397, Table 4.19). Contrary to the finding by Darmer et al. (2004:330), that there is a correlation between elapsed time after completion of training (that is years of experience), and a lack of record keeping knowledge, the current survey findings showed that the respondents with more experience had a higher ratio of adequate knowledge (Table 4.19) when compared to those with less experience after registration or enrolment. Experienced nurses should therefore be encouraged to share their record keeping knowledge with those who have less experience.
- Day/night shift: Statistically, there was no significant association between day/night shift and record keeping knowledge levels (p=0.078, Table 4.20). The majority of the respondents (75.98%, n=136/179) worked mainly day duty, of whom 79.38% (n=104/131) reported an adequate knowledge level, whereas fewer respondents who worked mainly night duty, reported an adequate knowledge level ratio (66.67%, n=32/48). Assuming that most in-service training takes place during the day, when there is more supervision, this result is not unexpected.
- Practice discipline: Statistically, there was no significant association between this variable and record keeping knowledge levels (p=0.803, Table 4.21). The relatively small variance of 7.78% between respondents from practice disciplines with the highest adequate knowledge level ratio (Surgical/IC Units with 77.78%, n=70/90) and the lowest adequate knowledge level ratio (Paediatric Units with 70.00%, n=14/20, Table 4.21), confirmed that knowledge levels are relatively similar across the practice disciplines.

Knowledge deficits exist, determined through the analysis of knowledge related questions (true, false or unsure responses) and answered incorrectly by more than 50% of the respondents (Appendix C):

- Question 34: *"When I use a specific type of machine (e.g. an infusion pump, a syringe driver, a vital signs monitor, a saturation monitor), whilst busy with patient care, I must indicate its serial number in the records that I keep."* The majority of respondents (69.35%, n=129/186) did not know that the serial number of electro-mechanical equipment must be indicated in the records (SANA, 1994:49). Previous research reported a 60% non-compliance rate regarding this criterion (Booyens & Uys, 1998:26-28).
- Question 36: *"Changes and/or mistakes must be ruled out with a single line, initialled and dated."* The majority of respondents (95.70%, n=178/186) did not know that changes and/or mistakes must be ruled out with a single line, signed with a full signature and dated, that is initialling the mistake only is no longer acceptable (Documentation in Action, 2006:71; SANA, 1994:50; Troskie, 2002:347; Teytelman, 2002:123, 124; Wood, 2003:27). Booyens and Uys (1998:26-28) found 80% non-compliance for this criterion.
- Question 42: *"The following sample entry is an accurate reflection of a patient's condition, reaction or need: '+++ Blood drained from the patient's abdominal wound.'"* More than half of the respondents (54.84%, n=102/186) failed to recognise that the sample entry provided was open to interpretation and that in stead, the blood loss should have been quantified, for example: *"Bloody coloured fluid drained from the patient's wound onto the linen, approximately 30 cm in diameter"* (Dimond, 2005a:461; Geyer 2004:42; Teytelman, 2002:123; Wood, 2003:27).
- Question 43: *"Special precautions taken (for example utilisation of cot sides, restraining) for patients who are delirious, confused, aggressive or sedated, must be reflected in the records after an incident has occurred."* More than half of the respondents (55.38%, n=103/186) did not know that the special precautions must always be reflected in the records when implemented, and not only when an incident or accident occurred (Herbst, 1997:39-41).
- Question 44: *"The effectiveness of analgesia that was administered to a patient must be recorded before the end of the shift."* The majority of respondents (74.19%, n=138/186) did not know that the effectiveness of analgesia must be recorded within 30 to 60 minutes of administration and not only before the end of the shift (Herbst, 1997:39-41; Geyer, 2004:40-42).

- Question 46: *"I must include my legal designation/professional rank (together with my signature) at least once per patient file."* Respondents were uncertain regarding this criterion: 49.46% (n=92/186) correctly indicated that a legal designation should be indicated with every signature (Dimond, 2005a:461; Teytelman, 2002:124) while 46.77% (n=87/186) indicated that once per patient file is sufficient. Booyens and Uys (1998:26-28) found a 65% non-compliance regarding this criterion.

In summary: The majority of respondents had an adequate knowledge level regarding record keeping. It is of concern that 25.14% (n=46/183) of respondents had an inadequate knowledge level. Self-reported attitudes relative to record keeping were associated significantly only with category of nurse (p=0.001, Table 4.16). There was a significant difference (p=0.002, Table 4.22) in the knowledge levels of ENAs when compared to RNs, with the odds of ENAs having an inadequate knowledge level being 4.179 times greater than the odds of RNs having an inadequate knowledge level. Although there were knowledge deficits, knowledge levels were not significantly associated with gender, hospital sector, years of experience, day/night shift or practice discipline. Next, the practice behaviour related findings will be discussed.

5.2.4 Discussion related to self-reported record keeping practice behaviours

The findings show that the majority of respondents (68.31%, n=125/183) reported acceptable practice behaviour when data were analysed against predetermined measurement scales. Apart from record keeping audit related studies, the researcher could not find published studies on self-reported record keeping practice behaviour. The findings are therefore discussed in terms of the six independent variables: Category of nurse, gender, hospital sector, years of experience, day/night shift and practice discipline that were or were not significantly associated with self-reported practice behaviour.

- Category of nurse: Statistically, there was a significant association between the category of nurse and record keeping practice behaviour (p=0.033, Table 4.23). Examining the ranked order for those nurses categorised as demonstrating adequate practice behaviour revealed that RNs ranked best (75.00%, n=69/92), as expected, followed unexpectedly by ENAs (69.39%, n=34/49) and only then by ENs (52.38%, n=22/42). ENs ranking third is disconcerting, considering that their Scope of Practice (Regulation 2598 of the Nursing Act 33 of 2005) holds them accountable for rendering and thus recording basic nursing care.

Similarly, of the respondents who were classified as having unacceptable practice behaviour (31.69%, n=58/183), the majority were ENs (47.62%, n=20/42). In general, it is expected of RNs to exhibit more advanced practice behaviour as the educational program for RNs prepares them for a lead role as an independent nurse practitioner, rendering and recording comprehensive nursing care and supervising other categories of nurses. It therefore follows that ENs, rendering and recording basic nursing care, and ENAs, rendering and recording elementary nursing care, should rank second and third respectively.

- Gender: Statistically, there was no significant association between this variable and record keeping practice behaviour (p=0.244, Table 4.24). As with the attitude and knowledge related data the gender-related findings cannot be generalised, due to the relatively small number of male respondents (n=8).

- Hospital sector: Statistically, there was no significant association between hospital sector and record keeping practice behaviour (p=0.867, Table 4.25). Government sector respondents displayed marginally higher levels of acceptable practice behaviour (68.63%, n=70/102) when compared to Private sector respondents (67.47%, n=56/83).

- Experience: The researcher found no references in the reviewed literature relating to the influence of years of experience on the record keeping practice behaviour of nurses. Although there was no statistically significant association between this variable and record keeping practice behaviour (p=0.315, Table 4.26), it is of concern that the respondents with more years of experience after registration or enrolment, generally reported lower levels of acceptable record keeping practice behaviour. These lower levels of practice behaviour ranged from 51.72% (n=15/29) for those with 11 to 15 years of experience after registration or enrolment, to 70.00% (n=62/90) for those with more than 15 years of experience after registration or enrolment. The remaining respondents reported acceptable practice behaviour levels ranging between 72.72% and 74.19%. It would seem that 'bad' habits may have become entrenched amongst more senior nurses.

- Day/night shift: Statistically, there was no significant association between day/night shift and record keeping practice behaviour (p=0.325, Table 4.27). The majority of the respondents (68.16%, n=122/179) worked the day duty shift, of whom 70.23% (n=92/131) reported an acceptable level of practice behaviour. The respondents who worked mainly night duty (26.82%,

n=48/179) reported lower ratios of acceptable practice behaviour at 62.50% (n=30/48). Considering that more nursing activities and most in-service training takes place during the day, and that during the day there is more supervision, this finding is not unexpected.

- Practice discipline: Statistically, there was no significant association between this variable and record keeping practice behaviour (p=0.074, Table 4.28), even though the variance between the self-reported practice behaviour scores confirmed that there were differences. The highest level of acceptable record keeping practice behaviour was found in Maternity Units (94.12%, n=16/17), followed by Paediatric Units (70.00%, n=14/20) and Surgical/IC Units (67.78%, n=61/90).

In summary: The majority of the respondents from the selected hospitals reported acceptable levels of record keeping practice behaviour. Practice behaviour was significantly associated with only category of nurse. There was a significant difference in the record keeping practice behaviour of ENs when compared to RNs (p=0.010, Table 4.29), with the odds of ENs reporting an unacceptable level of practice behaviour being 2.727 times greater than the odds of RNs reporting an unacceptable level of practice behaviour. Practice behaviour was s not significantly associated with gender, hospital sector, years of experience, day/night shift or practice discipline.

What nurses do when they practice their profession, is potentially influenced by a variety of factors. One of these is the record keeping approach utilised, which is influenced by the nursing philosophy, the documentation system and the record keeping policy framework applied at a specific institution (Björvell et al., 2003:210-213; Cheevakasemsook et al., 2006:367; Tapp, 1990:238-239). The finding that more than half (56.45%, n=105) of the respondents (Table 4.30) used a combination of the record keeping approaches as listed in the questionnaire, points either to an eclectic use of prescribed institutional guidelines, or, in the absence if such guidelines, to a lack of a personal and/or institutional philosophical foundation and/or guiding theoretical framework (Hitchins, 2004:301-307, Tapp, 1990:238). Alternatively, using a combination of approaches may indicate that nurses use the system that they are familiar with rather than following specific, institutional or organisational guidelines.

According to Björvell et al. (2002:39), Cheevakasemsook et al. (2006:371), Darmer et al. (2006:528), Griffiths et al. (2007:1325) and Tapp (1990:238), a lack of supervision, formal and in-formal in-service training, policy, regular record keeping audits and positive reinforcement, impacts negatively on record keeping in the

practice setting. Although the overall practice behaviour-related findings revealed mostly acceptable practice behaviour (Table 4.23), question specific analysis showed both deficiencies and strengths with regards to record keeping practice behaviours:

- If an arbitrarily set compliance level of 50% is considered as adequate, the provision of formal in-service training is insufficient, as only 38.17% (n=71/186) of the respondents indicated that they had received such assistance in the preceding six months. The Government hospitals fared worse, with only 36 (of 102) respondents (35.29%) answering in the affirmative, compared to 35 (of 84) respondents (41.67%) in the Private hospitals. In response to question 26 on the questionnaire: *"I don't need any more training or information regarding record keeping",* 66.66% (n=124/186) of the respondents either *'Strongly disagreed'* or *'Disagreed'* with the statement, confirming the inadequacy. In contrast, a 'Lack of sufficient (on-going) in-service training' was only ranked seventh amongst the list of barriers to effective record keeping (Table 4.34), probably due to other barriers being perceived as greater obstacles to record keeping by the respondents. According to the respondents, informal in-service training is more accessible as 59.14% (n=110/186) indicated that they had received such training in the preceding six months. Government and Private Hospitals compared equally in this regard, with respective compliance levels of 58.82% (n=60/102) and 59.52% (n=50/84) reported by respondents.
- Closely related to the provision of informal in-service training, is supervision of record keeping which may lead to utilisation of the teachable moment and/or on-the-spot training. In the study by Darmer et al. (2004:330), it was found that the perception of support by management was increased due to the fact that the study group received specific, formal in-service training. In a subsequent retrospective audit based study, Darmer et al. (2006:532) reported that *"supervision had a positive impact…during actual patient interactions [which] improved the knowledge of the project leaders as well as the nurses."* Supervision consisted of supervisor-nurse interaction in the clinical environment as opposed to decontextualised theoretical principles being taught in simulation. The survey results from the present study showed that 133 (of 186) respondents (71.51%) confirmed that adequate supervision took place, which is congruent with the finding that the majority of respondents also reported an adequate knowledge level and a positive attitude. Superior levels of supervision were reported in the Private Hospitals (75.00%) when compared to the Government Hospitals (68.63%).

The hierarchical nature of Government hospitals, where more supervisors in the form of Nursing Area Managers (Matrons) are evident when compared to Private Hospitals, possibly explains this finding.

- The majority of the respondents reported adequate availability of record keeping policy documents. There is congruence between the reported availability of record keeping policy documents in Government Hospitals (74.51%) and Private hospitals (73.81%). It is of concern that 22.58% (n=42) of the respondents indicated that no record keeping policy existed or that they were unsure whether it existed, indicating ineffective policy communication. According to Tapp (1990:233), the value of *"practices and procedures",* which includes policy, cannot be overemphasized when determining ward, nursing unit or hospital priorities, which in this instance referred to the availability of record keeping policy and guidelines.

- The positive effect of a regular audit program on the quality of record keeping is well documented. In a quasi-experimental longitudinal study by Björvell (2002:39), the positive effects of organisational and educational interventions on record keeping were shown, measured and maintained through regular audits. Similarly, in a longitudinal audit-based study conducted by Griffiths et al. (2007:1326-1327), they concluded that regular audits can lead to improvements in the quality of record keeping. In the present study, regular record keeping audits were reported by 72.58% (n=135) of the respondents, representing a difference of 30.47% between Government (58.82% compliance) and Private hospitals (89.29% compliance). This disparity between levels of auditing in Government and Private Hospitals is of concern, particularly the level of auditing reported for the Government Hospitals, where one quality assurance objective of the national DOH is that, in order to maintain high standards of health care and to determine how to resolve problem areas, the gap *"between standards and actual practices"* must be measured (DOH, 2007:2). A 58.82% compliance level in some of the Hospitals under the administration of the Government does not seem to satisfy the stated objective.

Further consideration of what nurses do, will do, or have done in relation to record keeping, shows that practice behaviour is erratic when respondents were required to integrate record keeping knowledge with practical examples (refer to questions 64 and 65). As reflected in Table 4.31, only 2.69% (n=5/186) of the respondents indicated the correct option concerning the correction of a written mistake in patient notes. There is congruence between the afore-mentioned finding and the result for

question 36, where only 2.15% (n=4/186) of the respondents indicated that the statement (*"Changes and/or mistakes must be ruled out with a single line, initialled and dated"*) was false. The lack of knowledge and practice behaviour integration is congruent with the findings by Cheevakasemsook et al. (2006:372), Darmer et al. (2004:330) and Howse and Bailey (1992:378), all of whom reported on similar deficiencies amongst the participants in their studies. In stark contrast to the above-mentioned trend, the majority of the respondents (72.58%, n=135/186) indicated the correct option regarding making a late entry. The afore-mentioned trend suggests that when an aspect of record keeping is widely known, it will be applied in the majority of instances, whereas lack of awareness of a specific record keeping aspect is likely to result in lack of application of the guideline.

In summary: The majority of respondents from the selected hospitals reported acceptable levels of record keeping practice behaviour, associated significantly only with category of nurse, with ENs, surprisingly reporting an unacceptable level of practice behaviour. Using a combination of record keeping approaches points to a possible lack of a philosophical foundation and record keeping guidelines in institutions. While both deficiencies and strengths regarding record keeping practice behaviour were evident, practice behaviour was erratic, evidenced when respondents were required to integrate record keeping knowledge with the practical examples provided (Appendix C, questions 64 and 65). An implication of these findings is that individual nurses and/or hospitals become vulnerable to medico-legal investigations if record keeping practices are sub-standard.

Having discussed the practice behaviour related findings, the barriers to effective record keeping will be discussed next.

5.2.5 Discussion related to the barriers to effective record keeping

Respondents ranked the difficulties they experience when keeping records according to their perception of how it influences their own effectiveness to do so (Table 4.34). The influence of 'Interruptions' and 'Having too little time to write down everything that must be recorded' on record keeping, validated by the respondents as the most significant barriers to effective record keeping, is well documented by Björvell et al. (2003:209-212), Cheevakasemsook et al. (2006:369-371), Darmer et al. (2004:328), Deane et al. (1986:175), Howse and Baily (1992:375), Martin et al. (1999:350), Pelletier et al. (2005:43, 44) and Tapp (1990:234). Considering the localities where most of the record keeping activities take place, as reported by Pelletier et al. (2005:43, 44), the link between poor record keeping and the record keeping environment becomes obvious. High traffic areas, such as the nurses' station, the patient's bedside, the Nursing Unit Manager's office, dining areas and

ward corridors, tend to be noisy, with the likelihood of frequent interruptions almost a certainty, resulting in less time being available for accurate and complete keeping of records.

While the high ranking of the first two barriers might have been expected, the barrier that was ranked third, 'Lack of confidence by nursing personnel regarding their ability to keep accurate records', came as a surprise, considering that adequate knowledge levels were reported by the majority of respondents. According to Cheevakasemsook et al. (2006:371-372), lack of confidence is a direct result of poor access to on-going in-service training, while Tapp (1990:236) relates it to unfamiliarity, or a lack of confidence regarding terminology and the nursing process, resulting in nurses rather not keeping records. Although the findings of the afore-mentioned small sample studies are based on qualitative analysis, which limits direct comparison with the present study, it points to a link between lack of confidence and a lack of knowledge resulting from having limited access to ongoing in-service training – a barrier ranked seventh in the current study. However, a lack of ongoing in-service training was confirmed by the respondents, with only 38.17% (n=71) reporting that they had received formal in-service training at least once in the preceding six months (Table 4.31).

The barriers that were ranked fourth and fifth by the respondents, relate directly to documentation issues. As far back as 1990, 'Having to record the same information over-and-over' was identified as a barrier to effective record keeping (Tapp, 1990:236). Repetition of information is a remnant of old school thinking which requires nurses to record the same information in a variety of places to make it legally more reliable (Cheevakasemsook et al., 2006:368-370; Howse & Bailey, 1992:375; Martin et al., 1999:348; Tapp, 1990:236-237). Even in the late 1990s, Martin et al (1999:350) alluded to the fact that most hospitals used out-dated documentation systems, not designed with modern record keeping practices and the nurse in mind. In a local context this remains true even today by virtue of the relative high ranking of these barriers. Anecdotally, the complaint that there are 'Too many forms to complete or use', besides the above-mentioned 'need' to repeat information, is also a recurring one. Martin et al. (1999:348) postulate that using a variety of documents could have a negative effect on patient care, mainly because it is time-consuming and obscures information. However, the ever increasing care and record keeping demands being placed on nurses, in addition to an increased awareness regarding possible litigation, often necessitates the use of a variety of forms to reflect care delivery.

The barriers ranked sixth to ninth, that is 'Not knowing what is expected with regards to record keeping', 'Lack of sufficient (on-going) in-service training', 'Not understanding the Nursing Process' and 'Not knowing what to record' (Table 4.34) can all be linked to in-service training, or the lack thereof, as discussed previously. By virtue of its tenth placed ranking, 'The inaccessibility of documentation', seems to no longer be a significant obstacle to effective record keeping.

In summary, respondents identified the following as important barriers to effective record keeping: Interruptions while keeping records, insufficient time to effectively keep records and a lack of confidence by nursing personnel regarding their ability to keep accurate records. These items imply a lack of in-service training.

A summary of the findings is presented at the start of Chapter 6, leading into conclusions and recommendations. Finally, the limitations of the study are summarised.

CHAPTER 6

SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

6.1 Introduction

The aim of this chapter is to summarise the main conclusions, based on the findings and discussion in Chapter five, to make recommendations for future research and to comment on the study limitations.

6.2 Summary of findings

The primary aim of this study was to describe nurses' self-reported attitudes towards, knowledge of and practice behaviours relative to record keeping in six selected Cape Town Metropole Hospitals. Guided by the first research question: What are nurses' self-reported attitudes towards, knowledge of and practice behaviours relative to record keeping?, nurses reported predominantly positive attitudes, adequate knowledge and acceptable practice behaviour relative to record keeping.

Regarding the second research question: Are selected variables (category of nurse, gender, hospital sector, years of experience after registration/enrolment, day/night shift and practice discipline) associated with nurses' record keeping attitudes, knowledge and practice behaviour?, a negative attitude was associated significantly with hospital sector and day/night shift, while inadequate knowledge levels and practice behaviour were associated significantly only with category of nurse.

In response to the final research question: What are nurses' perceptions of published barriers to effective record keeping for a local context?, 'Interruptions', Having too little time to write down everything that must be recorded' and 'Lack of confidence by nursing personnel regarding their ability to keep accurate records' were ranked as the top three barriers to effective record keeping in a local context.

6.3 Conclusions

Although respondents, particularly RNs, reported predominantly positive attitudes towards, adequate knowledge of and acceptable practice behaviours relative to record keeping, there are concerns that the deficiencies amongst ENs and ENAs may have serious implications for patient safety for the Government and Private health sectors. Next, recommendations are made to address the deficiencies concerning record keeping in nursing, revealed by the study findings.

6.4 Recommendations

According to Uys and Basson (1991:4), research must be conducted to the benefit of the practice to which it relates. With this in mind, the following recommendations are made regarding nursing practice as it relates to record keeping attitudes, knowledge and practice behaviour.

6.4.1 Recommendations to improve attitudes towards record keeping

The following general strategies to further improve attitudes towards record keeping are recommended:

- Adaptation of pre-certification educational programmes for all categories of nurses to incorporate creative problem-based approaches to the nursing process and record keeping principles for varied clinical situations to entrench integrated learning and clinical decision-making. The application, practice and evaluation of record keeping principles should become part of all written assignments with the aim to further enhance attitudes towards record keeping.
- The involvement of senior nurses in positive re-enforcement for excellence in record keeping through feedback to, personal reports, acknowledgement of individuals and regional awards for individuals, wards/nursing units or hospitals, based on record keeping audit results. Providing external motivation could have a positive influence on record keeping attitudes.
- De-emphasising the punitive consequences of poor record keeping, instead focussing on the benefits of a high standard of record keeping for the profession and the individual: facilitating communication, serving as a problem solving tool, providing a holistic picture of the patient, as well as being a chronologic record of patient care, serving as a teaching tool, and providing legal safeguards.
- Acknowledgement by nurses in general that, while human error is inevitable even for the best trained practitioners, there is a need to self-report knowledge deficiencies in an attempt to achieve the highest standard of record keeping for patient safety. This entails a paradigm shift in how record keeping is perceived, implemented and taught.

6.4.2 Recommendations to improve record keeping knowledge

Based on the research findings, the following strategies to further improve record keeping related knowledge are recommended:

- The compilation and publication of a record keeping booklet containing empirical and accepted local guidelines which should be updated annually. The SANC, nursing labour unions and the private sector should create a partnership with Government to ensure that all nurses receive the information to ensure that the latest recommendations are communicated and available.
- Regular record keeping seminars, presented at all hospitals and health care institutions, providing nurses with the opportunity to update their knowledge. The Quality Assurance division of the Western Cape Department of Health could facilitate this, incorporating the Private Hospitals and other Health Care Professionals.
- As a matter of priority, the SANC should finalise the continuous professional development system for nurses to empower themselves continuously with current knowledge.
- Curricula for undergraduate and postgraduate nursing programmes should include record keeping practice and writing skills as measurable outcomes to give nurses competence and confidence in describing clinical observations in patient records and reporting concerns promptly.
- Hospitals could focus their in-service training programs on the knowledge deficits identified in this research report, as well as their own audit findings, which should be conducted regularly. In addition, the content of institutional in-service training programmes should be evaluated regularly for appropriateness, currency and outcomes achieved.

6.4.3 Recommendations to improve record keeping practice behaviour

A nurse's knowledge and attitude manifests in what is done in practice. Based on the study findings, the following strategies to enhance the practice behaviour of nurses related to record keeping are recommended:

- The appointment of Clinical Facilitators to supervise and educate nurses in patient care settings, with Nurse Educator involvement in the integration of theory and practice in the clinical areas as it relates to record keeping.
- Coordinated, formal in-service training programs to include all aspects of record keeping, as outlined in this research report.
- The development of record keeping policies to guide practice and to be used as an educational tool, or if already in existence, to be revised regularly to reflect current information. These policies should be visible, referred to

continuously and used as an educational tool by Nurse Managers, Nurse Educators and personnel.

- The development of standardised systems of nursing documentation for specific hospital sectors should be investigated. At the very least, criteria for nursing documentation, based on the standards developed by Uys and Booyens (1991:29-31), should be developed on a national and/or provincial level.
- The development of a standardised nursing record keeping and care audit instrument should be investigated, based on national and/or provincial standards.

6.4.4 Recommendations for further research

The following recommendations regarding further research are made, not as a comprehensive list, but rather as a thought-trigger:

- To investigate the quality of record keeping in Cape Town Metropole hospitals. Such an audit-based study would clarify the current state of record keeping practice behaviour, while providing further insights into knowledge deficits.
- To investigate the record keeping practice behaviours in outpatient departments and/or primary health care centres. Although the same record keeping principles should apply, it is likely that the process and implementation of record keeping principles are quite different and this warrants further investigation.
- To explore computer-based record keeping systems, used extensively in developed countries as this is likely to be the future of record keeping, particularly in the context of a critical shortage of nurses. A South African situational analysis could be undertaken to determine the development, training and implementation readiness for such a system.
- Further investigation into the significant findings in this research report, including, but not limited to:
    - The factors that influence the attitude of personnel towards record keeping, in the different hospital sectors.
    - The reason(s) for the attitudinal differences towards record keeping between those working mostly day duty and those working mostly night duty.

- The implications for patient safety of the significant association between category of nurse and nurses' record keeping knowledge levels.
- The factors associated with the statistically significant association between category of nurse and record keeping practice behaviours.

- An investigation into enablers to effective record keeping.

In the final analysis, consensus derived and validated South African record keeping standards are required, based on established guidelines and determined through focussed research.

6.5 Limitations of the study

Describing the limitations of the study from the researcher's perspective, aims to highlight possible weaknesses that could have had an impact on the study, while providing preventative strategies for other researchers (Polit et al., 2001:60; Strydom, 2005c:253).

- Descriptive research aims to clarify the specific details of a situation, social setting or relationship by focussing on the "how", "why" and "who" (Fouché & De Vos, 2005a:106; Neuman, 1997:20, 228). The "how" (by means of the practice behaviour questions) and "who" (by means of the six identified variables: Category of nurse, gender, hospital sector, experience, day/night shift and practice discipline) were addressed to some extent in this study. A study exploring the "why" still needs to be undertaken. A qualitative research design would probably be the better suited methodology to explore this aspect.
- The survey method is defined as *"[s]tudies that are usually quantitative in nature and which aim to provide a broad overview of a representative sample of a large population"* (Mouton, 2001:152). The representivity of the sample is compromised due to the fact that the six participating hospitals were purposively and not randomly selected. Despite the limited representativeness of the sample, it remains reflective of the study population because of stratification. The lack of randomisation and representivity, limits generalisability of the study findings. As this was a study of limited scope, the researcher anticipated this limitation.
- The purposively, conveniently selected hospitals were all located in the urban Southern suburbs of the Cape Town Metropole. Due to the relative geographical proximity of the hospitals, it ensured convenient access for the researcher, thus reducing costs. Including hospitals from other geographical

areas within the Metropole, would have increased the generalisability of the research findings as the sample and possibly the response rate would have been higher. In addition, the differences and/or similarities between hospitals in the predominantly English speaking Southern suburbs and predominantly Afrikaans speaking Northern suburbs could have been compared. There may also have been differences between urban and per-urban hospitals.

- While stratification of the participants according to category of nurse was desirable, the mid-range response rate resulted in a small sample in some categories. A small sample size has the risk of impacting on the significance of the statistical tests, rendering it insensitive (Strydom, 2005a:195).
- The researcher's reluctance to source funding for the study, limited the inclusion of hospitals from other areas, as alluded to above.
- The self-administered questionnaire method resulted in a lower response rate, whereas group-administered questionnaires could have resulted in a better response rate (Neuman, 1997:247). Group-administered questionnaires are impractical in the nursing environment due to the different shifts being worked coupled to personnel shortages and workload.
- The researcher did not implement a procedure to confirm that the actual randomly selected participants received the questionnaires. This procedural loop-hole limits the methodological reliability. The integrity of the Research Contact Persons and the managers concerned is however, above reproach.
- The questionnaire development activities, including content, face and construct validity confirmation, as well as reliability and pilot testing, ensured in the view of the researcher, a clear, concise and well constructed data gathering tool. However, in retrospect, the following aspects could have been improved:
    - The sample size for the pilot study was inadequate – it included only two respondents from each category of nurse. The literature provides very little information on this aspect (Strydom, 2005d:206).
    - Question 9, dealing with respondents' employment status, became obsolete due to the sampling method utilised and should have been foreseen once the sampling method was finalised.
    - Although included in the instructions, the transitional statements should also have included an instruction to answer or rate all the

questions or statements. This could possibly have reduced the number of no responses and/or outliers.

- The itemised ranking scale question (Question 51), with fixed choices and forced ranking of reported barriers to effective record keeping, limited the respondents to ranking the barriers provided. An additional open ended question, where respondents could indicate and rank their own barriers to effective record keeping, would have provided better insight into the local circumstances.
- The inclusion of a question on the facilitators to effective record keeping, similar to question 51 which measured barriers, would have provided a more complete picture with regard to the state of record keeping.
- Questions 52 to 56, dealing with practice behaviours, would have been easier to answer, especially those that were negatively worded, if the choices provided (*"Yes", "No"* and *"Unsure"*) were changed to *"True", "False"* and *"Unsure"*.
- Instead of utilising Pearson's *r* correlation coefficient to establish reliability and internal consistency in conjunction with the test-retest method, utilising Cronbach's alpha, would have been more appropriate. The latter provides estimates for all possible ways of dividing the measures in two halves, thus making allowances for trends, like attitude and knowledge, which may change over time. The test-retest approach does not compensate for this (Polit et al., 2001:306-307).

- A form of demand characteristic (or social desirability) might have played a role in the survey responses, despite the non-experimental research design. Demand characteristic occurs when *"[s]ubjects may…produce responses that they think the researcher wants..."* (Mouton, 2001:107). Therefore, due to perceptions, attitude and practice behaviour related questions might have been answered according to 'what is expected', rather than what the respondent truly believes or experiences. Congruency in the findings, evident in this study, largely negates this possible limitation.

Despite the above-mentioned limitations, this study has provided new insights into nurses' self-reported attitudes, knowledge and practice behaviour relative to record keeping, in a local context.

6.6 Concluding remarks

This study of limited scope described the self-reported attitudes towards, knowledge of and practice behaviours of nurses, and the association between these factors and selected variables (category of nurse, gender, hospital sector, years of experience after registration/enrolment, day/night shift and practice discipline) relative to record keeping, in six selected Cape Town Metropole Hospitals.

In final summary: A predominantly positive self-reported attitude towards record keeping was evident (71.74%, n=132/184). The negative attitude ratio in the Private sector (58.49%, n=31/53) was larger than in the Government sector (41.51%, n=22/53) (OR=2.049, 95% CI=1.043-4.025, p=0.037). A larger ratio of respondents working day duty reported a negative attitude (60.00%, n=30/50), compared to those working night duty (40.00%, n=20/50) (OR=2.171, 95% CI=1.066-4.423, p=0.033).

Although adequate knowledge levels relative to record keeping were reported by the majority of respondents (74.86%, n=137/183), there were some knowledge deficits. Inadequate knowledge level ratios were more evident amongst ENAs (45.65%, n=21/46) when compared to RNs (30.43%, n=14/46) (OR=4.179, 95% CI=1.873-9.321, p=0.000).

Similarly, acceptable levels of self-reported record keeping practice behaviour were evident amongst the majority of respondents (68.31%, n=125/183). A higher ratio of unacceptable practice behaviour was reported by RNs (39.66%, n=23/58) when compared to ENs (34.48%, n=20/58) (OR=2.727, 95% CI=1.266-5.877, p=0.010).

Some of the most prominent practice behaviours reported by respondents included making use of a combination of record keeping approaches when keeping records, regular record keeping audits, sufficient availability of supervision relative to record keeping, reading what other nurses have written and nurses writing in the progress notes themselves.

The three top ranked barriers to effective record keeping were interruptions while keeping records, insufficient time to effectively keep records and a lack of confidence by nursing personnel regarding their ability to keep accurate records.

The findings of this study imply that the respondents' attitude towards, knowledge of and practice behaviour relative to record keeping may not account fully for anecdotal reports of inconsistent application of record keeping principles. What appears to be missing is established record keeping guidelines.

In striving towards record keeping excellence, the words of Aristotle seem applicable:

> *"We do not act rightly because we have virtue or excellence, but we rather have those because we have acted rightly. We are what we repeatedly do. Excellence then, is not an act, but a habit."*

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APPENDICES

APPENDIX A: Ethical approval – UCT Health Sciences Faculty

UNIVERSITY OF CAPE TOWN

Health Sciences Faculty
Research Ethics Committee
Room E52-24 Groote Schuur Hospital Old Main Building
Observatory 7925
Telephone [021] 406 6338 • **Facsimile** [021] 406 6411
e-mail: lamees.emjedi@uct.ac.za

13 May 2008

REC REF: 205/2008

Mr JM Olivier
C/o Ms Una Kyriacos
Nursing & Midwifery
Health & Rehab

Dear Mr Olivier

PROJECT TITLE: A SURVEY OF NURSES' KNOWLEDGE, ATTITUDES AND PRACTICE CONCERNING APPLICATION OF BEST-PRACTICE RECORD KEEPING GUIDELINES IN SELECTED CAPE TOWN METROPOLE HOSPITALS

Thank you for submitting your study to the Research Ethics Committee for review.

It is a pleasure to inform you that the Ethics Committee has **formally approved** the above-mentioned study

Approval is granted for one year till the 20th May 2009.

Please submit a progress report if the study continues beyond the expiry date or a closure report if completed within the period of approval.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the REC. REF in all your correspondence.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, HSF HUMAN ETHICS

Federal Wide Assurance Number: FWA00001637.

lemjedi

Institutional Review Board (IRB) number: IRB00001938

This serves to confirm that the University of Cape Town Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Convention on Harmonisation Good Clinical Practice (ICH GCP) and Declaration of Helsinki guidelines.

The Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

APPENDIX B: Sample letter sent to hospitals, requesting access

Enquiries: Mr J.M. Olivier
Telephone: 083 741 8597
E-mail: jmoli4@mweb.co.za

PO Box 12847
N1 City
GOODWOOD
7463

August 2008

The Director Nursing
<Name of Hospital>
ATT: <Name of Director Nursing>
<Address>

Ms <Name of Director Nursing>,

REQUEST TO INCLUDE NURSING PERSONNEL IN A RESEARCH SURVEY.

I am currently conducting a self-funded research project in partial fulfilment of the degree Master of Science in Nursing, at the University of Cape Town, and would like to include nursing personnel from <Name of Hospital> in the questionnaire survey. The aim of this research project is to determine to what extent the knowledge, attitude and practice of nurses influences the application of best practice record keeping guidelines.

As you are aware, record keeping is an integral part of health care delivery and quality patient care. The contemporary professional-ethical-legal framework, within which modern nursing science functions, increasingly places more emphasis on patient records. Together with caring, cognitive-, interpersonal- and technical nursing skills, as well as problem solving strategies and communication, it forms the basis of nursing practice.

Approval to conduct the study in three public and three private hospitals have been obtained from the University of Cape Town's Health Sciences Faculty Research Ethics Committee (reference number REC REF: 205/2008, dated 13 May 2008) and the Western Cape Department of Health (REF: 19/18/RP48/2008, dated 26 June 2008). Participation is voluntary and there will be no adverse consequences for the randomly selected participants who do not complete the questionnaire. The name of the hospitals concerned, nor any personal identifying information of participants, will be released in the findings. In the final research report, all information will be converted into figures and graphs, after having been statistically analysed with a computer program – this will generalise the findings beyond specific individuals or institutions. As this is a survey, no specific risks to participation are anticipated.

Your favourable consideration for access to <Name of Hospital> nursing personnel is requested, as apart from the scientific gain to the nursing profession, it is envisaged that the findings of this study will be utilised to formulate strategies to:

- Improve the level of knowledge that nurses of all professional categories have with regards to best practice record keeping guidelines;
- Circumvent barriers to effective record keeping;
- Enhance the attitude of nurses towards record keeping;
- Ensure that best practice record keeping guidelines are applied uniformly in the public and private sector;

- Aid quality improvement in record keeping.

I look forward to meeting with you (or your delegate) to discuss the finer details of the study – please contact me at your earliest convenience to arrange a suitable date and time. I include the study abstract and if you require any further information regarding the study, please do not hesitate to contact me.

I undertake to provide the hospital with an electronic copy (on compact disk) of the final research report.

Thanking you in anticipation,

(J.M. OLIVIER)
BA(Cur): HSM & HSE (UNISA). **Dip Nur:** RN, RM, RPN, RCN (SAMHS).

Enclosure

Study abstract (2 pages)

APPENDIX C: Questionnaire

Reference number (For official use only)					
01	*02*	*03*	*04*	*05*	*06*

RESEARCH QUESTIONNAIRE

A SURVEY OF NURSES' KNOWLEDGE, ATTITUDES AND PRACTICE CONCERNING APPLICATION OF BEST PRACTICE RECORD KEEPING GUIDELINES IN SELECTED CAPE TOWN METROPOLE HOSPITALS

[Title prior to re-submission]

I am currently conducting a research project in partial fulfilment of the degree Master of Science in Nursing, at the University of Cape Town. The aim of this research project is to determine to what extent the knowledge, attitude and practice of nurses influences the application of best practice record keeping guidelines.

Record keeping is an integral part of health care delivery and quality patient care. The contemporary professional-ethical-legal framework, within which modern nursing science functions, increasingly places more emphasis on patient records. Caring, cognitive-, interpersonal- and technical nursing skills, as well as problem solving strategies and communication, form the basis of nursing practice (Potgieter & Minnaar, 2002:212; 349).

Approval to conduct the research has been obtained from the Research Ethics Committee of the Faculty of Health Sciences, University of Cape Town, the Provincial Department of Health, the South African Military Health Service as well as the relevant Private Hospital Groups. Participation is voluntary and there will be no adverse consequences for not completing the questionnaire. Your anonymity, and that of the hospital, is ensured, as no personal identifying information is included on this questionnaire. In the final research report, all information will be converted into figures and graphs, after having been statistically analysed with a computer program – this will generalise the findings beyond specific individuals or institutions. As this is a survey, no specific risks to participation are anticipated.

Apart from the scientific gain to our profession, it is envisaged that the findings of this study will be utilised to formulate strategies to:

- Improve the level of knowledge that nurses of all professional categories have with regards to best practice record keeping guidelines;
- Circumvent barriers to effective record keeping;
- Enhance the attitude of nurses towards record keeping;
- Ensure that best practice record keeping guidelines are applied uniformly in the public and private sector;
- Aid quality improvement in record keeping.

It will take approximately 30-minutes to complete the questionnaire. After completion of the questionnaire, place it in the self-sealing envelope provided and post it in the *"Nursing Questionnaire Returns"* box (the location is specified on the next page). If you require any further information regarding the study, or are interested in the findings (due out towards the end of 2008) please do not hesitate to contact:

Johann Olivier (Researcher)

1104 Liberty Grande
Cnr Voortrekker & Vanguard Drive
Goodwood
7460

Telephone: 083 741 8597
Email: jmoli4@mweb.co.za

or

Una Kyriacos (Supervisor)

School of Health and Rehabilitation Sciences
Division of Nursing and Midwifery
University of Cape Town
Mowbray
7705

Telephone: 021 406 6410
Email: Una.Kyriacos@uct.ac.za

INSTRUCTIONS:

- Please answer all the questions by marking your choice / view / experience / feeling with a tick (√), e.g.:
  Are you a Nurse?
  [√] Yes
  [ ] No
  or by writing down the answer where required.
- This is not a test, therefore there are no right or wrong answers, just your view / feeling and/or experience.
- Please use a black ballpoint pen to complete the questionnaire and answer all the questions.
- If you want to change anything you have written down, you may do so by deleting the incorrect information and re-writing the information you want to provide. You may also use correction fluid.
- This questionnaire consists of **6** pages (including the cover page) and will take approximately **30-minutes** to complete.
- Place the completed questionnaire in the self-sealing envelope provided. Post it in the sealed *"Nursing Questionnaire Returns"* box, located at **<insert location>** before or on **<insert date>.**
  If you experience any difficulties in locating this box, please contact me, or the research contact person for your hospital, i.e. **<insert initials and surname>**, at telephone number **<insert contact number>.**.

CONSENT TO PARTICIPATE IN THE STUDY.

- Your voluntary participation in this study will be confirmed by returning a completed questionnaire.

SECTION A: DEMOGRAPHIC PROFILE

NO.	DEMOGRAPHIC INFORMATION	FOR OFFICIAL USE
001	What is your gender? [01] Male [02] Female	
002	What is your current age, in years? Specify: ……	

SECTION B: PROFESSIONAL PROFILE

NO.	PROFESSIONAL INFORMATION	FOR OFFICIAL USE
003	What is your current South African Nursing Council (SANC) registration / enrolment category? [01] Registered / Professional Nurse [02] Enrolled / Staff Nurse [03] Enrolled Nursing Auxiliary	
004	At which hospital do you currently work? [01] Groote Schuur Hospital (Provincial Government of the Western Cape) [02] Red Cross Children's Hospital (Provincial Government of the Western Cape) [03] 2 Military Hospital (Department of Defence – South African Military Health Services) [04] Constantiaberg Medi-Clinic (Medi-Clinic Holdings) [05] Vincent Pallotti Hospital (Life Healthcare) [06] UCT Private Academic Hospital (Netcare)	
005	In which clinical discipline do you currently practice: [01] Medicine [02] Surgery (including all relevant disciplines) [03] Obstetrics & Gynaecology [04] Maternity [05] Paediatrics [06] Palliative / Oncology and/or Rehabilitative Care [07] Intensive Care [08] Specialised Unit, please specify: …… [09] Other, please specify: ……	
006	How many years experience (after registration / enrolment) do you have? [01] Less than 1 year [02] 1 to 5 years [03] 6 to 10 years [04] 11 to 15 years [05] More than 15 years	

NO.	PROFESSIONAL INFORMATION	FOR OFFICIAL USE
007	What is your current functional position? Choose the option that best describes your current position. You may choose more than one option, if necessary. [01] Nursing Unit Manager / Operational Manager: Nursing [02] Chief Professional Nurse / Professional Nurse, Grade 3 [03] Senior Professional Nurse / Professional Nurse, Grade 2 [04] Registered Nurse / Professional Nurse, Grade 1 / Community Service Professional Nurse [05] Shift Leader [06] Senior Enrolled Nurse / Staff Nurse, Grade 2 [07] Enrolled Nurse / Staff Nurse, Grade 1 [08] Senior Enrolled Nursing Auxiliary / Enrolled Nursing Auxiliary, Grade 2 [09] Enrolled Nursing Auxiliary, Grade 1 [10] Other, please specify: ……..	
008	In the past 12 months, did you work mostly day duty or night duty? [01] Day duty [02] Night duty	
009	I am… [01] Permanently employed at the Hospital indicated in question 4. [02] Employed by a Nursing Agency to work at the Hospital indicated in question 4.	

SECTION C: RECORD KEEPING KNOWLEDGE, ATTITUDE AND PRACTICE

In this section, indicate whether you "Strongly Agree", "Agree", "Disagree" or "Strongly Disagree" with the given statement. If you are unsure (or if the statement does not apply to you), you may choose "Uncertain".
***Choose only one option** per statement by marking the appropriate column with a tick (√).*

NO.	I believe that…	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	FOR OFFICIAL USE
010	The Nursing Process forms the basis of good record keeping.						
011	Record keeping is not an essential element of effective care delivery.						
012	Record keeping is a professional responsibility.						
013	As nurses, we spend too much time on record keeping.						
014	Record keeping is just as important as providing patient care.						
015	Nursing records provide an up-to-date, comprehensive and concise view on the condition of, and care for the patient.						
016	Record keeping does not ensure patient safety.						
017	Nursing records provide a holistic profile of the physical, psychological and social factors that influence the patient's well-being.						
018	Nursing records facilitate communication between nursing personnel in the ward / department.						
019	Accurate record keeping will not protect me against possible legal action.						
020	The golden rule of record keeping is "if it is not recorded, it is considered not to have been done".						
021	Routine procedures need not be recorded every time it is performed.						
022	I will never be involved in a legal inquiry or a court case.						
023	My nursing training has prepared me to keep accurate records.						

024	The documentation system that is used in our hospital is too complicated to ensure accurate record keeping.						
025	I would keep more accurate records, if I had more time at my disposal.						
026	I don't need any more training or information regarding record keeping.						
027	Record keeping is just another unnecessary task.						
028	Nurses betray their relationship with the patient when they are slack in maintaining accurate records.						

In this section, indicate whether you believe the statement to be "True" or "False" If you are unsure, you may choose "Unsure", but you should try to choose either "True" or "False". ***Choose only one option*** *per statement by marking the appropriate column with a tick (√).*

NO.	To my knowledge…	*True*	*False*	*Unsure*	FOR OFFICIAL USE
029	Records must be kept in permanent form, i.e. permanent ink.				
030	The date must be indicated with each entry I make.				
031	When an entry is made in the patient record, the time must be recorded.				
032	Abbreviations are acceptable as long as I can remember what it means.				
033	My signature is "my mark", therefore there is no need for it to be legible, as long as I can identify it as mine.				
034	When I use a specific type of machine (e.g. an infusion pump, a syringe driver, a vital signs monitor, a saturation monitor), whilst busy with patient care, I must indicate its serial number in the records that I keep.				
035	Routine patient care activities can be recorded in the patient records before I have done it, as long as I always do it in the same way.				
036	Changes and/or mistakes must be ruled out with a single line, initialled and dated.				
037	I am responsible to record visits from other multi-disciplinary team members in the patient's nursing records.				
038	Only the Registered Nurse is allowed to write in the Progress & Evaluation Report.				
039	The following sample entry is an accurate reflection of a patient's condition, reaction or need: • *"The patient appears to have had a quiet day."*				
040	The following sample entry is an accurate reflection of a patient's condition, reaction or need: • *"The patient said: 'I slept well.'"*				
041	The following sample entry is an accurate reflection of a patient's condition, reaction or need: • *"The urinary catheter drained 250 ml clear, straw coloured urine."*				
042	The following sample entry is an accurate reflection of a patient's condition, reaction or need: • *"+++ Blood drained from the patient's abdominal wound."*				
043	Special precautions taken (for example utilisation of cot sides, restraining) for patients who are delirious, confused, aggressive or sedated, must be reflected in the records after an incident has occurred.				
044	The effectiveness of analgesia that was administered to a patient must be recorded before the end of the shift.				
045	Laboratory results that are received telephonically by a nurse must be recorded in the patient's records after the Doctor has been informed.				
046	I must include my legal designation / professional rank (together with my signature) at least once per patient file.				
047	The Scope of Practice Regulation (R2598) does not refer to my responsibility to keep records.				

NO.	To my knowledge…	True	False	Unsure	FOR OFFICIAL USE
048	I cannot sign an entry in the patient records on behalf of someone else.				
049	I must use layman's terms as far as possible when keeping records – this will ensure that more people can understand what was written.				

In this section, you must choose the option that best describes what you do, by marking it with a tick (√). ***Choose only one option.***

050	When I write a report on the progress of a patient, I use… [01] A Systems approach. [02] A Problem based approach. [03] An Activities of Daily Living approach. [04] A combination of the above-mentioned approaches. [05] No specific approach, I just write what comes to mind. [06] Another approach, not specified here – please specify: ……	

In this section, an alphabetical list of factors that could be considered as barriers to effective record keeping is provided. You must rank these factors from 1 to 10, where 1 = the factor that you consider to be the biggest barrier to effective record keeping and 10 = the factor you consider to have the least influence on effective record keeping. Write your allocated ranking-number (1 to 10) in the brackets next to the factor. You must use a ranking-number only once.
Please rank all the factors.

051	Nursing research shows that the problem areas in record keeping are influenced by several factors, often described as "barriers". How do you rate the influence of the following "barriers" on your ability to keep accurate records? [ ] Having to record the same information over and over. [ ] Having too little time to write down everything that must be recorded. [ ] Interruptions. [ ] Lack of confidence by nursing personnel regarding their ability to keep accurate records. [ ] Lack of sufficient (ongoing) in-service training. [ ] Not knowing what is expected with regards to record keeping. [ ] Not knowing what to record. [ ] Not understanding the Nursing Process. [ ] The inaccessibility of documentation. [ ] Too many forms to complete / use.	

In this section, you must choose whether the given statement is typical of what you do or experience, by indicating "Yes". If it is not typical of what you do or experience, indicate "No". If you are unsure, you may choose "Unsure", but try to choose either "Yes" or "No". ***Choose only one option*** *per statement by marking the appropriate column with a tick (√).*

NO.		Yes	No	Unsure	FOR OFFICIAL USE
052	I have received formal in-service training (e.g. a lecture) regarding record keeping, at least once in the past 6 months.				
053	In the hospital where I work, there is no policy document / guideline available on record keeping.				
054	Audits that evaluate record keeping and nursing care are conducted regularly in ward/department where I work.				
055	I have not received informal in-service training (e.g. on-the-spot training) regarding record keeping in the past month.				
056	There is no supervision in the ward / department where I work, to ensure good record keeping practices.				

In this section, you must choose whether the given statement is typical of what you do or experience every day, by indicating whether you do it or experience it "Always", "Sometimes" or "Never"
Choose only one option *per statement by marking the appropriate column with a tick (√).*

NO.	In my daily work…	Always	Some-times	Never	FOR OFFICIAL USE
057	I read (at least once a day) what other nursing personnel have recorded in the patient notes.				
058	I write in the patient's progress notes at least once a day.				
059	I read what other nursing personnel have recorded, because I am not sure what to write.				

NO.	In my daily work...	Always	Some-times	Never	FOR OFFICIAL USE
060	I look at what other nursing personnel have recorded regarding patients, as it gives me more information about the patients and therefore I can provide better care.				
061	When writing a patient's progress notes, I base my findings on the problems or needs identified in a Nursing Care Plan.				
062	I make use of a Nursing Care Plan drafted specifically for the patient(s) I am assigned to.				
063	I leave lines, or part of a line, open without drawing a line through it.				

In this section, you must choose your typical way of doing things, by indicating what you do in the given instance by marking it with a tick (√).

064

Mistakes are inevitable when writing in the patient's records. When I make a mistake, I correct it as follows...

(You may choose more than one option)

[01] I draw a single line through the mistake, e.g. *An ~~abdominal~~ X-ray was done on the patient.*

[02] I delete the mistake by scratching it out, e.g. *An ~~abdominal~~ X-ray was done on the patient.*

[03] I overwrite the incorrect information with the correct information, e.g. *At 08:00*

[04] I cover the mistake with correction fluid;

[05] I cover the mistake with a sticker;

[06] I initial the mistake, including my legal designation, e.g. *abdominal JoRo*

[07] I initial the mistake, without inserting my legal designation, e.g. *abdominal JO*

[08] I sign the mistake, including my legal designation with my signature, e.g. *abdominal*

[09] I sign the mistake, without including my legal designation with my signature, e.g. *abdo*

[10] I insert the date;

[11] I insert the time;

[12] I record the correct information;

065

A patient was seen by Dr G. Knell (accompanied by RN Z. Roth) at 09:50. He requested an immediate abdominal X-Ray. At 10:00, EN L. Hoepfner recorded that the abdominal X-Ray was completed, but RN Z. Roth could only record the Doctor's instruction at 10:15. The following options are examples of the **late entry** made in the patient record in this regard. Indicate the option (by marking it with a tick [√]), that you believe to be typical of the way that is should be done. If none of the two options provided are typical of the way you believe it should be done, indicate how you would record it in the space provided with "Option3".

[01] Option 1

DATE / TIME	PATIENT PROBLEM / NEED / ACTIVITY	PROGRESS & EVALUATION	SIGNATURE & LEGAL DESIGNATION
2008-02-27	*Investigations*	*Patient had an abdominal X-ray as requested by Dr G. Knell*	
10:00		*earlier.*	
10:15	*Doctors' Round*	*(Late entry) Patient seen by Dr G. Knell: He requested an*	
		immediate abdominal X-ray.	

[02] Option 2

DATE / TIME	PATIENT PROBLEM / NEED / ACTIVITY	PROGRESS & EVALUATION	SIGNATURE & LEGAL DESIGNATION
2008-02-27	*Investigations*	*Patient had an abdominal X-ray as requested by Dr G. Knell*	
10:00		*earlier.*	
10:15	*Doctors' Round*	*(Late entry) Patient seen by Dr G. Knell at approximately*	
		09:50: He requested an immediate abdominal X-ray.	

[03] Option 3

DATE / TIME	PATIENT PROBLEM / NEED / ACTIVITY	PROGRESS & EVALUATION	SIGNATURE & LEGAL DESIGNATION

Thank you for your willingness to participate. Place the completed questionnaire in the self-sealing envelope provided. Post it in the sealed *"Nursing Questionnaire Returns"* box, located at **<insert location>** before or on **<insert date>.** If you experience any difficulties in locating this box, please contact me (refer to contact details on page 1) or the research contact person for your hospital, i.e. **<insert initials and surname>**, at telephone number **<insert contact number>**

APPENDIX D: Letters of authority received from the different institutions

From: Sherril Reijnders [sherrilr@uct.netcare.co.za]

To: jmoli4@mweb.co.za

Cc:

Subject: Research Survey

Sent: Thu, 5/06/2008 7:12 AM

Hi Johan

You are most welcome to carry out your research project here. You had best pop around first so that you can ascertain if we comply with your criteria. If the UCTPAH environment is conducive to your survey, we can finalize details and set up an action plan.

You may make an appointment with my PA; Carmelita at 021 442 1846.

Regards

Sherril Reijnders
UCT Private Hospital
Anzio Road, Observatory,
Cape Town, 7925

Tel ++2721 4421846
Fax ++2721 4421851

Life HEALTH CARE Group

Vincent Pallotti Hospital
Alexandra Road, Pinelands, Cape Town 7405
PO Box 103, Howard Place 7450
Telephone: +27 21 506 5111
Facsimile: +27 21 531 0116
www.vincentpallottihospital.co.za

06 June 2008

Mr. J.M. Olivier
1104 Liberty Grande
Cnr Voortrekker & Vanguard Drive
Goodwood
7460

RE: Permission for Research

Dear Johann,

Your letter dated 04 June is acknowledged with thanks.

We hereby grant permission for your research to be done at Life Vincent Pallotti Hospital, providing that the confidentiality of the participants and hospital is maintained with in the study.

Kindly contact me should you want to distribute the questionnaires.

All the best with the research.

Alta Dorse
Nursing Manager

From: Jordaan, Estelle [estelle.jordaan@mediclinic.co.za]

To: jmoli4@mweb.co.za

Cc: Kershoff, Marijke [marijke.kershoff@mediclinic.co.za];Redfern, Frankie [Frankie.redfern@mediclinic.co.za]

Subject: FW: Record Keeping Research Survey

Sent: Wed, 11/06/2008 6:12 PM

Dear Johann

Thanks very much for providing the additional information required. The hospital has also given its blessing so you have fulfilled all the requirements in terms of the Medi-Clinic Research policy and can therefore proceed with your research. It will be loaded onto our research register by the end of the week.

All the best with the hard work it entails.

Kind regards

Estelle

Verwysing
Reference 19/18/RP48/2008
Isalathiso

Navrae
Enquiries Dr T. Naledi
Imibuzo

Telefoon
Telephone 021 483 9901
Ifowuni

Departement van Gesondheid
Department of Health
IGobo lezeMpilo

Captain J. M. Olivier
1104 Liberty Grande
Cnr Voortrekker & Vanguard Drive
Goodwood
7460

Fax to 021 7996230

Dear Capt Olivier

A Survey of Nurses Knowledge Attitude and Practice concerning the Application of Best-practice Record Keeping Guidelines in Selected Cape Town Metropole Hospitals

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research. Please contact the following members of staff to assist you with access to the facilities;

1) Dr B. Engelbrecht at elengelb@pgwc.gov.za tel: 021 4836034 (GSH Hospital)
2) Dr D. Erasmus at dierasmus@pgwc.gov.za tel: 021 6585091 (Red Cross Children's Hospital)
3) Mr T. Mabuda at tmabuda@pgwc.gov.za tel: 021 483 8453 (D: Nursing Services)

We look forward to hearing from you.

Yours sincerely

DR J CUPIDO
DEPUTY-DIRECTOR GENERAL
DISTRICT HEALTH SERVICES AND PROGRAMMES
DATE: 29/04/2008

CC: MR T. MABUDA D: NURSING SERVICES

Dorpstraat 4
Posbus 2060
KAAPSTAD
8000

4 Dorp Street
PO Box 2060
CAPE TOWN
8000

RESTRICTED

Telephone: 315-0216
Fax: 326-3246
Enquiries: Brig Gen A.C. Smit

DI/SDCI/DCIOC/R/202/3/7

Defence Intelligence
Private Bag X367
Pretoria
0001

24 July 2008

APPLICATION FOR RESEARCH: 82424870PE CAPT J.M. OLIVIER

1. Your letter 2MH/R/104/10/18 dd 15 July 08 refers.

2. Permission is hereby granted from a security perspective to Capt J.M. Olivier to conduct the research regarding "The Application of Best-Practice Record Keeping Guidelines in Selected Cape Town Metropole Hospitals," as requested.

3. The researcher can utilise the questionnaire that was submitted to DI/SDCI in his research on condition that he complies with the following:

   a. Questionnaires that are completed by DOD members are to be classified as Confidential and handled accordingly.

   b. The researcher must obtain permission from the different Unit Commanders beforehand to distribute the questionnaires to the individuals identified for his research.

   c. No reference should be made to the specific Units and/or respondents.

   d. The respondents taking part in the research must do so voluntarily.

4. On completion of the research, the final product must first be submitted to DI/SDCI for scrutiny and authority for release before distribution to any organisation or individual outside the DOD.

5. For your attention.

(MAJ GEN M. MABUZA)
CHIEF OF DEFENCE INTELLIGENCE: LT GEN

DISTR

For Action

OC 2 Military Hospital (Attention: Capt J.M. Olivier)

Internal

DI/SDCI/DCIOC/R/202/3/7

RESTRICTED

Verwysing
Reference 11/R

Navrae
Enquiries Mr T Mabuda

Telefoon
Telephone (021) 483-8453

Fax
Faks (021) 483 3527

Date: 14th August 2008

Departement van Gesondheid
Department of Health
iSebe lezeMpilo

Mr. Olivier J.M.
1104 Liberty Grande
Cnr Voortrekker & Vanguard Drive
Goodwood
7460

Re: Request to conduct Research Survey.

1. Your letter dated 7 August 2008 has reference.
2. Permission is hereby granted for you to conduct the study in the public health facilities.
3. You are further advised to make necessary arrangements with the facility managers of specific institutions targeted in your study.
4. It will be appreciated if you could make the funding and recommendations of your study available to the department
5. Best wishes

Director: Nursing Services

Date: 2008/08/14

Dorpstraat 4
Posbus 2060
KAAPSTAD
8000

4 Dorp Street
PO Box 2060
CAPE TOWN
8000

Departement van Gesondheid
Department of Health
iSebe lezewMpilo

Verwysing:
Reference:
Isalathiso:

Navrae:
Enquiries: Mrs S.E. Roodt

Datum:
Date: 16 October 2008

Telefoon:
Telephone: (021) 658 5008
Ifowuni:

Fax: (021) 658 5326

Mr J.M. Olivier
1104 Liberty Grande
Corner Voortrekker & Vanguard Drive
GOODWOOD
7460

Dear Mr Olivier

RE : REQUEST TO INCLUDE NURSING PERSONNEL IN A RESEARCH SURVEY

Your request dated 13 August 2008 refers.

Your request for include Nursing Personnel in your research survey is granted.

We wish you all the success with your endeavours.

Yours sincerely

MRS S.E. ROODT
MANAGER : NURSING

SER/fd-DOH – LETTERHEAD1.DOC-2008.10.16

Red Cross War Memorial Children's Hospital
Klipfontein Road / Private Bag
RONDEBOSCH
7700 / 7701

Rooikruis Oorlogsgedenk Kinderhospitaal
Klipfonteinweg / Privaatsak
RONDEBOSCH
7700 / 7701

RESTRICTED

SG/D MN/R/82424870PE

Telephone: (012) 367 9151
Facsimile: (012) 367 9173
Enquiries: Brig Gen N.C. Madlala-Msimango

Department of Defence
SAMHS Office
Private Bag X102
Centurion
0046

23 September 2008

REQUEST TO INCLUDE NURSING PERSONNEL FROM 2 MILITARY HOSPITAL IN A RESEARCH QUESTIONNAIRE SURVEY

1. Reference is made to letter 2MH/R/82424870PE dd26 June 2008.

2. Permission is hereby granted for the mentioned purpose.

3. In this case clearance by intelligence is sufficient.

(N.C. MADLALA-MSIMANGO)
DIRECTOR NURSING: BRIG GEN

NCM/ncm

Enquiries : C Thorpe
Telephone : (021 404-2071
Fax : (021) 404-2370
E-mail : cjthorpe@pgwc.gov.za
Reference : F/9/1/2
Date : 28 May 2009

Departement van Gesondheid
Department of Health
ISebe lezeMpilo

Mr J M Olivier
P.O.Box 12847
N1 City
7463

CONFIRMATION OF PERMISSION TO CONDUCT SURVEY RESEARCH

Your letter dated August 2008 refers.

This letter serves to confirm that permission was granted to enable you to conduct your research at Groote Schuur Hospital during 2008/2009

A copy of your final report should be forwarded to this office on completion.
My apologies for the delay in submitting this letter of confirmation.

Yours sincerely

C J THORPE (MISS)
MANAGER: NURSING
For Chief Executive Officer
Groote Schuur Hospital

Groote Schuur Hospital
Private Bag,
Observatory, 7935
Telephone: 404-9111

APPENDIX E: Interview schedule utilised during the initial meetings.

ACCESS NEGOTIATION INTERVIEW SCHEDULE

HOSPITAL: Hospital 1 / 2 / 3 / 4 / 5 / 6 **DATE & TIME:** ……

MEETING WITH: ……

POSITION: ……

INTRODUCTION

Thank you for time and opportunity.

Overview of study - aims & objectives (Page 3)

Preliminary questions?

CONTACT PERSON: Page 32

- A **research contact person** (RCP) will be identified at each of the hospitals, after access has been negotiated (see Appendix A for sample letter to the hospitals). These **non-remunerated** research contact persons will **act as liaison between the researcher and the respondents**, specifically with regards to **coordinating the distribution and collection of the questionnaires**.
- The RCP, who will be identified for each hospital, will then be requested to **hand over the questionnaires to each identified participant**. If an identified participant is not available (due to for example leave, sick leave or other reasons) the research contact person will be requested to replace that specific person with an alternative respondent of his/her choice (or according to availability), with the provision that (s)he must be of the same nursing category.
    - Suggestions: ……...

INCLUSION / EXCLUSION CRITERIA (Page 31)

Inclusion criteria

Eligibility for inclusion in the study is based on:

- The location of the hospital; and
- The professional qualifications of the participants.

The hospitals must be located in the Cape Town Metropolitan area. In an effort to ensure sufficient data representivity across the healthcare service delivery spectrum, and taking into account the

objectives of the study, three hospitals must be government hospitals and three must be private hospitals. The chosen hospitals are purposively, but conveniently sampled.

The respondents must be nurses, registered or enrolled in one of the following SANC categories: Registered Nurse, Enrolled Nurse or Enrolled Nursing Auxiliary. They must be employed permanently or in a part-time capacity (through a nursing agency), on day or night duty, at any one of the identified Cape Town Metropole Hospitals. In addition, they must be involved in direct care of patients who are admitted to wards or care units, accommodating patients for a period of six hours or longer.

Exclusion criteria

The following exclusion criteria will be applied to ensure data integrity:

- **Any nurse** or person who is **not a qualified Registered Nurse, Enrolled Nurse or Enrolled Nursing Auxiliary**. Therefore **nursing learners and care workers are excluded**.
- **Nurses who are not involved in the direct care of patients in a ward or care unit** – those working in outpatient departments, clinics, theatres or any similar setting where patients are **admitted for less than six hours**, are thus excluded from participation.
- **Nursing educators, clinical facilitators and nursing managers** (for example nursing area managers or nursing service managers), **other than nursing unit managers**.

DATA COLLECTION PERIOD (to be confirmed once all access has been negotiated):

Distribution of questionnaires will be confirmed for a **specific two-week date and time period (possibly July 2008)**. The two-week time period was decided upon **to provide sufficient opportunity for nurses on the different shifts to receive, complete and return the questionnaire**. During this period, **follow-up contact will be maintained** to ensure that the research contact person receives the necessary support regarding any questions or difficulties that may arise.

DATA COLLECTION PROCESS (Page 32)

- A **nursing personnel name list** will also be requested, to aid sampling – this name list will be kept in the strictest confidentiality, or **alternatively, sampling will be done in the presence of a nursing management representative or the research contact person** – whichever is more acceptable to the hospital and nursing management (also see sampling and sample size).
    - Name list to be provided / To be done with RCP
    - Date & Time: ……...
    - Comments: ……..

- In summary, the steps for drawing a random sample entails:
    - Assigning a chronological number to each person on the list, done separately for each hospital. The inclusion and exclusion criteria will be applied prior to allocating the chronological numbers;
    - Calculating the sample size, according to the Stoker-table referred to previously;
    - Using a table of random numbers to identify specific participants from the name list, until the pre-determined numbers of participants are reached;
    - The research contact person, who will be identified for each hospital, will then be requested to hand over the questionnaires to each identified participant. If an identified participant is not available (due to for example leave, sick leave or other reasons) the research contact person will be requested to replace that specific person with an alternative respondent of his/her choice (or according to availability), with the provision that (s)he must be of the same nursing category.
- The respondents will receive a questionnaire and an opaque, self-sealing envelope in which to place their completed questionnaires before returning it. They will be allowed to **complete the questionnaire in their own time,** whilst being requested not to discuss it with other nursing personnel. A target date for return will be indicated on the questionnaire.
- A secure and marked ***"Nursing Questionnaire Returns"*** **box** will be placed at a **central point** within each hospital, as agreed upon by hospital management, in which the respondents can post their completed questionnaires – this will **enhance privacy** and confidentiality. For this purpose, a sturdy ten litre cardboard box will be covered with brown, 80g/m^2 paper. An opening (12 cm x 1 cm) will be made on the top where the completed questionnaire (in an envelope) can be posted. The research contact person will be requested to encourage the return of questionnaires, without coercing respondents.
    - Location: ……..
- Collection of the *"Nursing Questionnaire Returns"* box will be confirmed with the research contact person, for a specific date and time, where after data analysis will commence.
- If possible / necessary, a **nursing management meeting** will / can be attended to inform all nursing managers regarding the aims and objectives of the study.
    - Yes / No: ……..……..
    - Date & time: ……..…… Duration: ……

CONCLUSION:

Further follow-up / meeting required: ……

QUESTIONS & COMMENTS:

……..**Time:** ……

Meeting checklist: Proposal / Memory stick / Ethical approval / Copy of questionnaire / Copy of Methodology

APPENDIX F: Sampling pro-forma

RESEARCH SAMPLE SIZE CALCULATION

Hospital: *1 / 2 / 3 / 4 / 5 / 6* ***Date:*** *……..*

Done by: *……*

PROCEDURE:

- *List all nursing personnel.*
- *Apply exclusion criteria (Theatre, OPD, Management [excl UM's] SN, PEN, CW).*
- *Colour code according to included categories.*
- *Number included personnel from 1 - …*
- *Determine number of personnel per category, and complete table below.*
- *Select (at random) a starting column on "Table of Random Digits".*
- *Select participants according to table (top to bottom) until saturation per category is reached.*

PROF. CAT.	TOT. @ HOSP.	EXCL	INCL. POP. SIZE	% OF TOTAL*
RN	-	=		a. %
EN	-	=		b. %
ENA	-	=		c. %
OTHER (CW)	-	=		
TOTAL	-	=		

SAMPLE SIZE, according to STOKER x	%		RN*	EN*	ENA*	TOT
=		X	a. %	b. %	c. %	%
		=	+	+	=	

RN										EN										ENA									
1	23	45	67	89						1	23	45	67	89						1	23	45	67	89					
2	24	46	68	90						2	24	46	68	90						2	24	46	68	90					
3	25	47	69	91						3	25	47	69	91						3	25	47	69	91					
4	26	48	70	92						4	26	48	70	92						4	26	48	70	92					
5	27	49	71	93						5	27	49	71	93						5	27	49	71	93					
6	28	50	72	94						6	28	50	72	94						6	28	50	72	94					
7	29	51	73	95						7	29	51	73	95						7	29	51	73	95					
8	30	52	74	96						8	30	52	74	96						8	30	52	74	96					
9	31	53	75	97						9	31	53	75	97						9	31	53	75	97					
10	32	54	76	98						10	32	54	76	98						10	32	54	76	98					
11	33	55	77	99						11	33	55	77	99						11	33	55	77	99					
12	34	56	78	00						12	34	56	78	00						12	34	56	78	00					
13	35	57	79	01						13	35	57	79	01						13	35	57	79	01					
14	36	58	80	02						14	36	58	80	02						14	36	58	80	02					
15	37	59	81	03						15	37	59	81	03						15	37	59	81	03					
16	38	60	82	04						16	38	60	82	04						16	38	60	82	04					
17	39	61	83	05						17	39	61	83	05						17	39	61	83	05					
18	40	62	84	06						18	40	62	84	06						18	40	62	84	06					
19	41	63	85	07						19	41	63	85	07						19	41	63	85	07					
20	42	64	86	08						20	42	64	86	08						20	42	64	86	08					
21	43	65	87	09						21	43	65	87	09						21	43	65	87	09					
22	44	66	88	10						22	44	66	88	10						22	44	66	88	10					

APPENDIX G: Coding guidelines used for data capturing and analysis in Excel.

For the purpose of data capturing and analysis, an Excel spreadsheet was prepared. It made provision for capturing administrative aspects as well as the information related to the specific objectives:

- Administrative aspects:
  - Questionnaire number: Coded sequentially from 1.
- Section A:
  - Gender (question 1), coded as follows:
    - F, for Female; and
    - M, for Male
  - Age (question 2): The actual age provided (in years), was captured.
- Section B:
  - SANC registration/enrolment category (question 3), coded as follows:
    - RN, for Registered / Professional Nurse;
    - EN, for Enrolled Nurse; and
    - ENA, for Enrolled Nursing Auxiliary.
  - Originating hospital code (question 4), coded according to a random number from 1 to 6, allocated and known only by the researcher, in accordance with confidentiality requirements.
  - Hospital type (question 4), coded as follows:
    - GOV, for Government hospital; and
    - PRIV, for Private hospital.
  - Clinical discipline (question 5), captured as indicated on questionnaire, with the exception of option eight and nine, which were coded as:
    - SU-[description of unit,] for Specialised Unit; and
    - OTHER-[description], for Other
  - Experience (question 6), coded as:
    - <1, for Less than 1 year;

- 1 TO 5, for 1 to 5 years;
- 6 TO 10, for 6 to 10 years;
- 11 TO 15, for 11 to 15 years; and
- >15, for more than 15 years.

- Current functional position (question 7), coded as:
  - NUM, for Nursing Unit Manager / Operational Manager Nursing;
  - CPN, for Chief Professional Nurse / Professional Nurse Grade 3;
  - SPN, for Senior Professional Nurse / Professional Nurse Grade 2;
  - RN, for Registered Nurse / Professional Nurse Grade 1 / Community Service Registered Nurse;
  - SL, for Shift Leader;
  - SEN, for Senior Enrolled Nurse / Staff Nurse Grade 2;
  - EN, for Enrolled Nurse / Staff Nurse Grade 1;
  - SEN, for Senior Enrolled Nursing Auxiliary / Enrolled Nursing Auxiliary Grade 2;
  - ENA, for Enrolled Nursing Auxiliary Grade 1;
  - OTHER-[description], for option 10; or
  - Any combination of the above, as more than one option could be chosen in some instances, for example SPN-SL, for Senior Professional Nurse and Shift Leader.
- Shift distribution (question 8), coded as:
  - DD, for Day duty; and
  - ND, for Night duty
- Employment status (question 9), coded as:
  - PERM, for Permanently employed at the Hospital; and
  - AGENCY, for Employed by a Nursing Agency.

- Section C:
    - Attitude measuring questions (questions 10 to 28). Five-way capturing and analysis was done:
        - Capturing and analysis variation 1 – Raw data responses coded as:
            - SA, for Strongly agree;
            - A, for Agree;
            - U, for Uncertain;
            - D, for Disagree; and
            - SD, for Strongly disagree.
        - Capturing and analysis variation 2 – Responses coded numerically as:
            - 4, for Strongly agree;
            - 3, for Agree;
            - 2, for Uncertain;
            - 1, for Disagree; and
            - 0, for Strongly disagree, and vice versa when statements were worded in an alternative direction.
        - Capturing and analysis variation 3 – Responses coded as a combined numerical value for all responses, thus giving an overall indication of attitude on a scale of 0 to 76 (19 questions x 4 = 76).
        - Capturing and analysis variation 4 – Combined numerical value coded as a percentage, consisting of the combined numerical value, expressed as a percentage of the total possible (76), thus providing an 'attitude percentage' (for example [58 ÷ 76] x 100 = 76.31%).
        - Capturing and analysis variation 5 – Responses coded as an interpretive category, based on the 'attitude percentage' achieved. These were coded as:
            - POS, for a Positive attitude – attitude percentage between 68.42% and 100% (a score of 52 to 76);

- NEG, for a Negative attitude – attitude percentage between 0.00% and 67.11% (a score of 0 to 51);

- Knowledge measuring questions (questions 29 to 49 and 64 to 65). Again, five-way capturing and analysis was done:
  - Capturing and analysis variation 1 – Raw data responses coded as:
    - T, for True;
    - F, for False; and
    - U, for Unsure.
  - Capturing and analysis variation 2 – Responses coded numerically as:
    - 1, for True;
    - 0, for False; and vice versa when statements were worded in an alternative direction; and
    - 0, for Unsure.
  - Capturing and analysis variation 3 – Responses coded as a combined numerical value for all responses, thus giving an overall indication of the knowledge level on a scale of 0 to 23 (23 questions x 1 = 23).
  - Capturing and analysis variation 4 – Combined numerical value coded as a percentage, consisting of the combined numerical value, expressed as a percentage of the total possible (23), thus providing a 'knowledge level percentage' (for example [15 ÷ 23] x 100 = 65.21%).
  - Capturing and analysis variation 5 – Responses coded as an interpretive category, based on the knowledge level percentage' achieved. These were coded as:
    - AKL, for Adequate knowledge level – for percentages between 60.87% and 100% (a score of 14 to 23);
    - IKL, for Inadequate knowledge level – for percentages between 0.00% and 56.52% (a score of 0 to 13).

- Practice behaviour related questions (questions 52 to 56, 57 to 63 and 64 to 65): In this instance, five-way capturing and analysis were also utilised:
  - Capturing and analysis variation 1, for questions 52 to 56 – Raw data responses coded as:
    - Y, for Yes;
    - N, for No; and
    - U, for Unsure.
  - Capturing and analysis variation 1, for questions 57 to 63 – Raw data responses coded as:
    - A, for Always;
    - S, for Sometimes; and
    - N, for Never.
  - Capturing and analysis variation 1, for questions 64 to 65 – Raw data responses coded as:
    - C, for Correct combination (1, 8, 10, 11 and 12) chosen; and
    - I, for Incorrect combination.
  - Capturing and analysis variation 2, for questions 52 to 56 – Responses coded numerically as:
    - 1, for Yes; and
    - 0, for No, and vice versa when statements were worded in an alternative direction; and
    - 0, for Unsure.
  - Capturing and analysis variation 2, for questions 57 to 63 – Responses coded numerically as:
    - 2, for Always;
    - 1, for Sometimes, and vice versa when statements were worded in an alternative direction; and
    - 0, for Never.

- Capturing and analysis variation 2, for questions 64 to 65 – Responses coded numerically as:
    - 1, for Correct combination (1, 8, 10, 11 and 12) chosen;
    - 0, for Incorrect combination.
- Capturing and analysis variation 3, for questions 52 to 65 – Responses coded as a combined numerical value for all responses, thus giving an overall indication of practice application, on a scale of 0 to 21 [((5 questions x 1 = 5) + (7 questions x 2 = 14) + (2 questions x 1 = 2)) = 21].
- Capturing and analysis variation 4, for questions 52 to 65 – Combined numerical value coded as a percentage, consisting of the combined numerical value, expressed as a percentage of the total possible (21), thus providing a 'practice application percentage' (for example 15 ÷ 21 = 71.42%).
- Capturing and analysis variation 5, for questions 52 to 65 – Responses coded as an interpretive category, based on the 'practice behaviour percentage' achieved. These were coded as:
    - APB, for Acceptable practice behaviour – a practice behaviour percentage between 71.43% and 100% (a score of 15 to 21);
    - UPB, for Unacceptable practice behaviour – a practice behaviour percentage between 0.00% and 66.66% (a score of 0 to 14).

- Progress report writing system (question 50), coded as:
    - SYS, for a Systems approach;
    - PRO, for a Problem based approach;
    - ADL, for an Activities of Daily Living approach;
    - COM, for a Combination of approaches;
    - NSA, for No Specific Approach; and
    - OTH-[description], for Another approach not specified.

- Ranking of perceived barriers to effective record keeping (question 51), coded numerically from 1 to 10, as ranked by the respondent.

- Other codes utilised throughout the questionnaire:
  - Codes were added during data capturing, as it became apparent that not all questions were answered appropriately – these codes included:
    - NR, for No Response – when open spaces were left, or no choice was made; and
    - IR, for Incorrect Response – when more than one choice was indicated, where only one choice was appropriate.
  - For the purpose of data analysis, no numerical codes were captured for no or incorrect responses. This was done to ensure the accurate calculation of mean scores, medians and central tendencies, where appropriate.

APPENDIX H: Raw data tables

Analysis of questions 1 – 9: Frequency distribution reflecting the demographic and professional profile of the nursing respondents

(RN=Registered Nurse EN=Enrolled Nurse ENA=Enrolled Nursing Auxiliary NR=No Response IR=Inadequate Response)

PROFILE CHARACTERISTIC		NR	IR	RN	EN	ENA	TOTAL
Gender	Male	0	0	2	0	6	**8**
	Female	0	1	89	42	44	**176**
	NR / IR	1	0	1	0	0	**2**
TOTAL		**1**	**1**	**92**	**42**	**50**	**186**
Average age (in years)		-	-	42.71	42.51	40.74	**42.26**
Place of work	Hospital 1	0	1	26	13	10	**50**
	Hospital 2	1	0	10	7	11	**29**
	Hospital 3	0	0	17	5	1	**23**
	Hospital 4	0	0	18	5	10	**33**
	Hospital 5	0	0	11	2	4	**17**
	Hospital 6	0	0	10	10	14	**34**
TOTAL		**1**	**1**	**92**	**42**	**50**	**186**
Current practice discipline	Medicine	0	1	10	7	11	**29**
	Surgery	0	0	13	6	16	**35**
	Obstetrics & Gynaecology	0	0	3	2	1	**6**
	Maternity	0	0	11	4	2	**17**
	Paediatrics	0	0	12	2	6	**20**
	Palliative/Oncology/Rehabilitative Care	0	0	6	9	8	**23**
	Intensive Care	0	0	11	2	1	**14**
	Specialised Unit	0	0	2	1	0	**3**
	Other	0	0	23	8	4	**35**
	NR / IR	1	0	1	1	1	**4**
TOTAL		**1**	**1**	**92**	**42**	**50**	**186**
Post-registration/enrolment experience	< 1 year	0	0	2	3	6	**11**
	1 – 5 years	0	0	15	6	10	**31**
	6 – 10 years	0	0	16	5	2	**23**
	11 – 15 years	0	0	15	7	7	**29**
	> 15 years	0	1	44	21	25	**91**
	NR / IR	1	0	0	0	0	**1**
TOTAL		**1**	**1**	**92**	**42**	**50**	**186**
Functional position	Nursing Unit Manager	0	0	17	-	-	**17**
	Professional Nurses	0	0	17	-	-	**17**
	Senior Professional Nurse	0	0	14	-	-	**14**
	Registered Nurse	0	0	28	-	-	**28**
	Shift leader	0	0	15	-	-	**15**
	Senior Enrolled Nurse	0	0	-	21	-	**21**
	Enrolled Nurse	0	0	-	17	-	**17**
	Senior Enrolled Nursing Auxiliary	0	0	-	-	26	**26**
	Enrolled Nursing Auxiliary	0	0	-	-	24	**24**
	Other	0	0	0	0	0	**0**
	NR / IR	1	1	1	4	0	**7**
TOTAL		**1**	**1**	**92**	**42**	**50**	**186**
Shift	Day duty	0	1	69	31	30	**131**
	Night duty	0	0	21	7	20	**48**
	NR / IR	1	0	2	4	0	**7**
TOTAL		**1**	**1**	**92**	**42**	**50**	**186**
Employment status	Permanently employed	0	1	91	40	48	**180**
	Nursing agency	0	0	0	0	0	**0**
	NR / IR	1	0	1	2	2	**6**
TOTAL		**1**	**1**	**92**	**42**	**50**	**186**

Analysis of questions 10 – 28: Frequency distribution of the attitudes of nursing personnel towards record keeping (desired attitude indicated with a darker border)

(SA=Strongly agree A=Agree U=Uncertain D=Disagree SD=Strongly disagree)

QUESTION NO.	NR/IR	SA	A	U	D	SD	TOTAL
10. The Nursing Process forms the basis of good record keeping	2	119	61	0	3	1	**186**
11. Record keeping is not an essential element of effective care delivery.	4	9	9	4	64	96	**186**
12. Record keeping is a professional responsibility.	3	121	50	2	7	3	**186**
13. As nurses, we spend too much time on record keeping.	1	25	61	8	74	17	**186**
14. Record keeping is just as important as providing patient care.	1	95	82	1	7	0	**186**
15. In general, nursing records provide an up-to-date, comprehensive and concise view on the condition of, and care for the patient.	2	111	70	0	3	0	**186**
16. Record keeping does not ensure patient safety.	2	16	47	10	72	39	**186**
17. In general, nursing records provide a holistic profile of the physical, psychological and social factors that influence the patient's well-being.	8	66	100	6	5	1	**186**
18. Nursing records facilitate communication between nursing personnel in the ward / department.	2	94	86	0	4	0	**186**
19. Accurate record keeping will not protect me against possible legal action.	3	7	11	9	71	85	**186**
20. The golden rule of record keeping is "if it is not recorded, it is considered not to have been done".	0	122	60	1	2	1	**186**
21. Routine procedures need not be recorded every time it is performed.	2	34	40	6	63	41	**186**
22. I will never be involved in a legal inquiry or a court case	5	8	18	67	49	39	**186**
23. My nursing training has prepared me to keep accurate records	1	98	79	1	7	0	**186**
24. The documentation system that is used in our hospital is too complicated to ensure accurate record keeping.	7	13	20	13	101	32	**186**
25. I would keep more accurate records, if I had more time at my disposal.	5	35	78	9	53	6	**186**
26. I don't need any more training or information regarding record keeping.	4	12	32	14	104	20	**186**
27. Record keeping is just another unnecessary task.	6	2	0	0	87	90	**186**
28. Nurses betray their relationship with the patient when they are slack in maintaining accurate records.	12	33	65	23	41	12	**186**

Analysis of question 3 and 29 – 49: Frequency distribution of the different nurse categories, per knowledge statement (correct answer indicated with a darker border)

QUESTION NO.	NURSE CATEGORY	NR/IR	TRUE	FALSE	UNSURE	TOTAL
29. Records must be kept in permanent form, that is, permanent ink.	**RN**	0	90	1	1	**92**
	EN	1	41	0	0	**42**
	ENA	1	46	1	2	**50**
	NR/IR	0	2	0	0	**2**
	TOTAL	**2**	**179**	**2**	**3**	**186**
30. The date must be indicated with each entry I make.	**RN**	0	90	2	0	**92**
	EN	0	41	1	0	**42**
	ENA	2	48	0	0	**50**
	NR/IR	0	1	0	0	**1**
	TOTAL	**2**	**181**	**3**	**0**	**186**
31. When an entry is made in the patient record, the time must be recorded.	**RN**	0	92	0	0	**92**
	EN	0	42	0	0	**42**
	ENA	1	49	0	0	**50**
	NR/IR	0	2	0	0	**2**
	TOTAL	**1**	**185**	**0**	**0**	**186**
32. Abbreviations are acceptable as long as I can remember what it means.	**RN**	0	11	77	4	**92**
	EN	0	6	35	1	**42**
	ENA	3	11	36	0	**50**
	NR/IR	0	1	1	0	**2**
	TOTAL	**3**	**29**	**149**	**5**	**186**
33. My signature is "my mark", therefore there is no need for it to be legible, as long as I can identify it as mine.	**RN**	0	4	88	0	**92**
	EN	1	3	37	1	**42**
	ENA	2	6	38	4	**50**
	NR/IR	0	1	1	0	**2**
	TOTAL	**3**	**14**	**164**	**5**	**186**
34. When I use a specific type of machine (e.g. an infusion pump, a syringe driver, a vital signs monitor, a saturation monitor), I must indicate its serial number in the records that I keep.	**RN**	1	9	71	11	**92**
	EN	3	3	28	8	**42**
	ENA	2	7	30	11	**50**
	NR/IR	0	1	0	1	**2**
	TOTAL	**6**	**20**	**129**	**31**	**186**
35. Routine patient care activities can be recorded in the patient records before I have done it, as long as I always do it in the same way.	**RN**	2	2	87	1	**92**
	EN	0	1	40	1	**42**
	ENA	3	3	44	0	**50**
	NR/IR	0	1	1	0	**2**
	TOTAL	**5**	**7**	**172**	**2**	**186**
36. Changes and/or mistakes must be ruled out with a single line, initialled and dated.	**RN**	1	88	3	0	**92**
	EN	0	42	0	0	**42**
	ENA	3	46	1	0	**50**
	NR/IR	0	2	0	0	**2**
	TOTAL	**4**	**178**	**4**	**0**	**186**
37. I am responsible to record visits from other multi-disciplinary team members in the patient's nursing records.	**RN**	1	86	5	0	**92**
	EN	1	35	4	2	**42**
	ENA	4	32	12	2	**50**
	NR/IR	0	2	0	0	**2**
	TOTAL	**6**	**155**	**21**	**4**	**186**
38. Only the Registered Nurse is allowed to write in the Progress & Evaluation Report	**RN**	2	3	85	2	**92**
	EN	1	0	41	0	**42**
	ENA	1	3	43	3	**50**
	NR/IR	0	0	2	0	**2**
	TOTAL	**4**	**6**	**171**	**5**	**186**
39. The following sample entry is an accurate reflection of a patient's condition, reaction or need: *"The patient appears to have had a quiet day."*	**RN**	2	11	75	4	**92**
	EN	0	0	32	1	**42**
	ENA	3	14	31	2	**50**
	NR/IR	0	1	1	0	**2**
	TOTAL	**5**	**35**	**139**	**7**	**186**

QUESTION NO.	NURSE CATEGORY	NR/IR	TRUE	FALSE	UNSURE	TOTAL
40. The following sample entry is an accurate reflection of a patient's condition, reaction or need: *"The patient said: 'I slept well.'"*	**RN**	0	61	29	2	**92**
	EN	1	25	13	3	**42**
	ENA	2	28	18	2	**50**
	NR/IR	0	1	1	0	**2**
	TOTAL	**3**	**115**	**61**	**7**	**186**
41. The following sample entry is an accurate reflection of a patient's condition, reaction or need: *"The urinary catheter drained 250 ml clear, straw coloured urine."*	**RN**	0	81	11	0	**92**
	EN	2	33	6	1	**42**
	ENA	3	38	9	0	**50**
	NR/IR	0	2	0	0	**2**
	TOTAL	**5**	**154**	**26**	**1**	**186**
42. The following sample entry is an accurate reflection of a patient's condition, reaction or need: *"+++ Blood drained from the patient's abdominal wound."*	**RN**	1	41	46	4	**92**
	EN	1	23	16	2	**42**
	ENA	4	25	16	5	**50**
	NR/IR	0	2	0	0	**2**
	TOTAL	**6**	**91**	**78**	**11**	**186**
43. Special precautions taken (for example utilisation of cot sides, restraining) for patients who are delirious, confused, aggressive or sedated, must be reflected in the records after an incident occurred.	**RN**	2	30	60	0	**92**
	EN	2	19	21	0	**42**
	ENA	2	25	21	2	**50**
	NR/IR	1	0	1	0	**2**
	TOTAL	**7**	**74**	**103**	**2**	**186**
44. The effectiveness of analgesia that was administered to a patient must be recorded before the end of the shift.	**RN**	0	71	20	1	**92**
	EN	0	32	10	0	**42**
	ENA	1	33	12	4	**50**
	NR/IR	0	2	0	0	**2**
	TOTAL	**1**	**138**	**42**	**5**	**186**
45. Laboratory results that are received telephonically must be recorded in the patient's records after the Doctor has been informed.	**RN**	2	57	26	7	**92**
	EN	0	23	16	3	**42**
	ENA	3	31	14	2	**50**
	NR/IR	0	2	0	0	**2**
	TOTAL	**5**	**113**	**56**	**12**	**186**
46. I must include my legal designation / professional rank with my signature at least once per patient file.	**RN**	1	45	43	3	**92**
	EN	1	13	28	0	**42**
	ENA	1	27	21	1	**50**
	NR/IR	0	2	0	0	**2**
	TOTAL	**3**	**87**	**92**	**4**	**186**
47. The Scope of Practice Regulation (R2598) does not refer to my responsibility to keep records.	**RN**	3	6	80	3	**92**
	EN	3	5	30	4	**42**
	ENA	5	3	33	9	**50**
	NR/IR	0	1	1	0	**2**
	TOTAL	**11**	**15**	**144**	**16**	**186**
48. I cannot sign an entry in the patient records on behalf of someone else.	**RN**	0	85	7	0	**92**
	EN	0	40	2	0	**42**
	ENA	1	48	1	0	**50**
	NR/IR	0	2	0	0	**2**
	TOTAL	**1**	**175**	**10**	**0**	**186**
49. I must use layman's terms as far as possible when keeping records – this will ensure that more people can understand what was written.	**RN**	0	24	61	7	**92**
	EN	2	14	17	9	**42**
	ENA	5	20	17	8	**50**
	NR/IR	0	0	2	0	**2**
	TOTAL	**7**	**58**	**97**	**24**	**186**

Analysis of question 50: Frequency distribution of the approaches used by nursing respondents when writing patient progress reports

Record keeping approach	Frequency	%
A systems approach	24	12.90%
A problem based approach	33	17.74%
An activities of daily living approach	15	8.06%
A combination of approaches	105	56.45%
No specific approach – just record what comes to mind	0	0.00%
Other	3	1.62%
NR/IR	6	3.23%
TOTAL	**186**	**100%**

Analysis of question 51: The barriers to effective record keeping, ranked by nursing respondents according to the factor considered to be the biggest barrier, to the factor considered to have the least influence on effective record keeping

RANKING	*DESCRIPTION OF THE BARRIERS TO EFFECTIVE RECORD KEEPING*	*MEAN RANKING SCORE*
1	Interruptions.	3.74
2	Having too little time to write down everything that must be recorded.	4.47
3	Lack of confidence by nursing personnel regarding their ability to keep accurate records.	5.17
4	Having to record the same information over-and-over.	5.33
5	Too many forms to complete or use.	5.53
6	Not knowing what is expected with regards to record keeping.	5.60
7	Lack of sufficient (on-going) in-service training.	5.63
8	Not understanding the Nursing Process.	5.87
9	Not knowing what to record.	6.19
10	The inaccessibility of documentation.	7.18

Analysis of questions 52 – 56: Frequency distribution regarding the availability of supportive activities relative to effective record keeping (desired practice behaviour indicated with a darker border)

QUESTION NO.	NR/IR	YES	NO	UNSURE	TOTAL
52. I have received formal in-service training (e.g. a lecture) regarding record keeping, at least once in the past 6 months.	5	71	109	1	**186**
53. In the hospital where I work, there is no policy document / guideline available on record keeping.	6	32	138	10	**186**
54. Audits that evaluate record keeping and nursing care are conducted regularly in the ward / department where I work.	8	135	32	10	**186**
55. I have not received informal in-service training (e.g. on-the-spot training) regarding record keeping in the past month.	8	67	110	1	**186**
56. There is no supervision in the ward / department where I work, to ensure good record keeping practices.	6	46	133	1	**186**

Analysis of question 57 – 63: Frequency distribution of nurses' self-reported record keeping practice behaviour (desired practice behaviour indicated with a darker border)

QUESTION NO.	NR/IR	ALWAYS	SOMETIMES	NEVER	TOTAL
57. I read (at least once a day) what other nursing personnel have recorded in the patient notes.	3	145	35	3	**186**
58. I write in the patient's progress notes at least once a day.	7	149	21	9	**186**
59. I read what other nursing personnel have recorded, because I am not sure what to write.	2	7	31	146	**186**
60. I look at what other nursing personnel have recorded regarding patients, as it gives me more information about the patients and therefore I can provide better care.	7	111	54	14	**186**
61. When writing a patient's progress notes, I base my findings in the problems or needs identified in a Nursing Care Plan.	5	119	44	18	**186**
62. I make use of a Nursing Care Plan drafted especially for the patient(s) I am assigned to.	6	105	46	29	**186**
63. I leave lines, or a part of a line, open without drawing a line through it.	5	10	23	148	**168**

Analysis of question 64: Frequency distribution regarding the respondents' knowledge relative to the recommended method of correcting mistakes

METHOD INDICATED	FREQUENCY	%
Correct (options 1, 8, 10, (11), 12	5	2.69%
Incorrect (any other combination)	174	93.55%
NR/IR	7	3.76%

Analysis of question 65: Frequency distribution regarding the respondents' knowledge relative to making a late entry

METHOD INDICATED	FREQUENCY	%
Correct (options 2)	135	72.58%
Incorrect	39	20.97%
NR/IR	12	6.45%

Analysis of question 4 and 10 – 28: Frequency distribution reflecting nurses' self-reported attitudes towards record keeping from the different hospitals (desired practice aspect indicated with a darker border)

QUESTION NO.	HOSPITAL	NR/IR	SA	A	U	D	SD	TOTAL
10. The Nursing Process forms the basis of good record keeping.	**1**	0	32	17	0	1	0	**50**
	2	0	20	9	0	0	0	**29**
	3	0	16	7	0	0	0	**23**
	4	1	17	13	0	1	1	**33**
	5	1	11	5	0	0	0	**17**
	6	0	23	10	1	0	0	**34**
	TOTAL	**2**	**119**	**61**	**0**	**3**	**1**	**186**
11. Record keeping is not an essential element of effective care delivery.	**1**	2	2	1	2	19	24	**50**
	2	0	3	0	0	11	15	**29**
	3	1	0	1	0	10	11	**23**
	4	1	3	3	1	8	17	**33**
	5	0	0	0	0	4	13	**17**
	6	0	1	4	1	12	16	**34**
	TOTAL	**4**	**9**	**9**	**4**	**64**	**96**	**186**

QUESTION NO.	HOSPITAL	NR/IR	SA	A	U	D	SD	TOTAL
12. Record keeping is a professional responsibility	**1**	1	28	16	1	3	1	**50**
	2	1	17	10	0	1	0	**29**
	3	0	16	6	0	0	1	**23**
	4	1	23	8	0	0	1	**33**
	5	0	16	1	0	0	0	**17**
	6	0	21	9	1	3	0	**34**
	TOTAL	**3**	**121**	**50**	**2**	**7**	**3**	**186**
13. As nurses, we spend too much time on record keeping.	**1**	0	3	5	2	34	6	**50**
	2	0	4	5	3	14	3	**29**
	3	0	5	9	0	7	2	**23**
	4	0	6	22	0	4	1	**33**
	5	0	3	8	1	4	1	**17**
	6	1	4	12	2	11	4	**34**
	TOTAL	**1**	**25**	**61**	**8**	**74**	**17**	**186**
14. Record keeping is just as important as providing patient care.	**1**	1	32	17	0	0	0	**50**
	2	0	13	15	0	1	0	**29**
	3	0	11	11	0	1	0	**23**
	4	0	11	20	1	1	0	**33**
	5	0	8	7	0	2	0	**17**
	6	0	20	12	0	2	0	**34**
	TOTAL	**1**	**95**	**82**	**1**	**7**	**0**	**186**
15. In general, nursing records provide an up-to-date, comprehensive and concise view on the condition of, and care for the patient.	**1**	0	32	18	0	0	0	**50**
	2	1	18	10	0	0	0	**29**
	3	0	14	9	0	0	0	**23**
	4	0	15	18	0	0	0	**33**
	5	0	12	5	0	0	0	**17**
	6	1	20	10	0	3	0	**34**
	TOTAL	**2**	**111**	**70**	**0**	**3**	**0**	**186**
16. Record keeping does not ensure patient safety.	**1**	0	3	8	5	23	11	**50**
	2	0	2	7	0	15	5	**29**
	3	0	5	5	2	6	5	**23**
	4	2	1	14	1	11	4	**33**
	5	0	1	3	2	5	6	**17**
	6	0	4	19	0	12	8	**34**
	TOTAL	**2**	**16**	**47**	**10**	**72**	**39**	**186**
17. In general, nursing records provide a holistic profile of the physical, psychological and social factors that influence the patient's well-being.	**1**	2	21	26	1	0	0	**50**
	2	1	8	19	1	0	0	**29**
	3	0	7	16	0	0	0	**23**
	4	2	10	18	1	2	0	**33**
	5	0	7	8	1	1	0	**17**
	6	3	13	13	2	2	1	**34**
	TOTAL	**8**	**66**	**100**	**6**	**5**	**1**	**186**
18. Nursing records facilitate communication between nursing personnel in the ward / department.	**1**	1	28	21	0	0	0	**50**
	2	1	15	11	0	2	0	**29**
	3	0	10	13	0	0	0	**23**
	4	0	13	20	0	0	0	**33**
	5	0	8	8	0	1	0	**17**
	6	0	20	13	0	1	0	**34**
	TOTAL	**2**	**94**	**86**	**0**	**4**	**0**	**186**
19. Accurate record keeping will not protect me against possible legal action.	**1**	2	1	1	3	18	25	**50**
	2	1	2	3	1	12	10	**29**
	3	0	0	3	2	6	15	**23**
	4	0	3	3	2	11	14	**33**
	5	0	1	2	0	6	8	**17**
	6	0	0	2	1	18	13	**34**
	TOTAL	**3**	**7**	**11**	**9**	**71**	**85**	**186**

QUESTION NO.	HOSPITAL	NR/IR	SA	A	U	D	SD	TOTAL
20. The golden rule of record keeping is "if it is not recorded, it is considered not to have been done".	**1**	0	32	17	0	0	1	**50**
	2	0	21	8	0	0	0	**29**
	3	0	15	8	0	0	0	**23**
	4	0	16	16	1	0	0	**33**
	5	0	14	3	0	0	0	**17**
	6	0	24	8	0	2	0	**34**
	TOTAL	**0**	**122**	**60**	**1**	**2**	**1**	**186**
21. Routine procedures need not be recorded every time it is performed.	**1**	0	10	9	1	16	14	**50**
	2	0	7	6	1	10	5	**29**
	3	0	8	5	0	7	3	**23**
	4	1	2	7	3	14	6	**33**
	5	1	2	4	0	5	5	**17**
	6	0	5	9	1	11	8	**34**
	TOTAL	**2**	**34**	**40**	**6**	**63**	**41**	**186**
22. I will never be involved in a legal inquiry or a court case.	**1**	1	4	6	21	14	4	**50**
	2	2	3	3	8	8	5	**29**
	3	0	0	1	10	6	6	**23**
	4	1	1	4	13	8	6	**33**
	5	0	0	2	2	4	9	**17**
	6	1	0	2	13	9	9	**34**
	TOTAL	**5**	**8**	**18**	**67**	**49**	**39**	**186**
23. My nursing training has prepared me to keep accurate records.	**1**	1	26	21	0	2	0	**50**
	2	0	22	7	0	0	0	**29**
	3	0	11	12	0	0	0	**23**
	4	0	13	17	1	2	0	**33**
	5	0	10	6	0	1	0	**17**
	6	0	16	16	0	2	0	**34**
	TOTAL	**1**	**98**	**79**	**1**	**7**	**0**	**186**
24. The documentation system that is used in our hospital is too complicated to ensure accurate record keeping.	**1**	1	5	1	3	30	10	**50**
	2	2	3	1	0	19	4	**29**
	3	0	1	6	1	11	4	**23**
	4	2	3	7	5	15	1	**33**
	5	1	0	2	1	9	4	**17**
	6	1	1	3	3	17	9	**34**
	TOTAL	**7**	**13**	**20**	**13**	**101**	**32**	**186**
25. I would keep more accurate records, if I had more time at my disposal.	**1**	1	7	20	4	15	3	**50**
	2	2	3	13	1	8	2	**29**
	3	0	4	14	1	4	0	**23**
	4	1	9	15	1	7	0	**33**
	5	1	5	8	0	3	0	**17**
	6	0	7	8	2	16	1	**34**
	TOTAL	**0**	**35**	**78**	**9**	**53**	**6**	**186**
26. I don't need any more training or information regarding record keeping.	**1**	1	2	9	1	32	5	**50**
	2	0	1	3	2	22	1	**29**
	3	0	0	4	3	12	4	**23**
	4	2	2	8	4	14	3	**33**
	5	0	3	3	3	8	0	**17**
	6	1	4	5	1	16	7	**34**
	TOTAL	**4**	**12**	**32**	**14**	**104**	**20**	**186**
27. Record keeping is just another unnecessary task	**1**	1	1	0	0	22	26	**50**
	2	0	1	0	0	12	16	**29**
	3	0	0	0	0	10	13	**23**
	4	1	0	0	1	22	9	**33**
	5	1	0	0	0	8	8	**17**
	6	3	0	0	0	13	18	**34**
	TOTAL	**6**	**2**	**0**	**1**	**87**	**90**	**186**

QUESTION NO.	HOSPITAL	NR/IR	SA	A	U	D	SD	TOTAL
28. Nurses betray their relationship with the patient when they are slack in maintaining accurate records.	**1**	3	8	19	6	10	4	**50**
	2	1	6	10	2	9	1	**29**
	3	2	3	8	5	5	0	**23**
	4	1	5	10	7	8	2	**33**
	5	1	4	7	1	3	1	**17**
	6	4	7	11	2	6	4	**34**
	TOTAL	**12**	**33**	**65**	**23**	**41**	**12**	**186**

<u>Analysis of question 4 and 10 – 28</u>: Frequency distribution of nurses' attitudes towards record keeping for Government and Private Hospitals (desired practice aspect indicated with a darker border)

QUESTION NO.	SECTOR	NR/IR	SA	A	U	D	SD	TOTAL
10. The Nursing Process forms the basis of good record keeping.	**GOV**	0	68	33	0	1	0	**102**
	PRIV	2	51	28	0	2	1	**84**
	TOTAL	**2**	**119**	**61**	**0**	**3**	**1**	**186**
11. Record keeping is not an essential element of effective care delivery.	**GOV**	3	5	2	2	40	50	**102**
	PRIV	1	4	7	2	24	46	**84**
	TOTAL	**4**	**9**	**9**	**4**	**64**	**94**	**186**
12. Record keeping is a professional responsibility	**GOV**	2	61	32	1	4	2	**102**
	PRIV	1	60	18	1	3	1	**84**
	TOTAL	**3**	**121**	**50**	**2**	**7**	**3**	**186**
13. As nurses, we spend too much time on record keeping.	**GOV**	0	12	19	5	55	11	**102**
	PRIV	1	13	42	3	19	6	**84**
	TOTAL	**1**	**25**	**61**	**8**	**74**	**17**	**186**
14. Record keeping is just as important as providing patient care.	**GOV**	1	56	43	0	2	0	**102**
	PRIV	0	39	39	1	5	0	**84**
	TOTAL	**1**	**95**	**82**	**1**	**7**	**0**	**186**
15. In general, nursing records provide an up-to-date, comprehensive and concise view on the condition of, and care for the patient.	**GOV**	1	64	37	0	0	0	**102**
	PRIV	1	47	33	0	3	0	**84**
	TOTAL	**2**	**111**	**70**	**0**	**3**	**0**	**186**
16. Record keeping does not ensure patient safety.	**GOV**	0	10	20	7	44	21	**102**
	PRIV	2	6	27	3	28	18	**84**
	TOTAL	**2**	**16**	**47**	**10**	**72**	**39**	**186**
17. In general, nursing records provide a holistic profile of the physical, psychological and social factors that influence the patient's well-being.	**GOV**	3	336	61	2	0	0	**102**
	PRIV	5	30	39	4	5	1	**84**
	TOTAL	**8**	**66**	**100**	**6**	**5**	**1**	**186**
18. Nursing records facilitate communication between nursing personnel in the ward / department.	**GOV**	2	53	45	0	2	0	**102**
	PRIV	0	41	41	0	2	0	**84**
	TOTAL	**2**	**94**	**86**	**0**	**4**	**0**	**186**
19. Accurate record keeping will not protect me against possible legal action.	**GOV**	3	3	4	6	36	50	**102**
	PRIV	0	4	7	3	35	35	**84**
	TOTAL	**3**	**7**	**11**	**9**	**71**	**85**	**186**
20. The golden rule of record keeping is "if it is not recorded, it is considered not to have been done".	**GOV**	0	68	33	0	0	1	**102**
	PRIV	0	54	27	1	2	0	**84**
	TOTAL	**0**	**122**	**60**	**1**	**2**	**1**	**186**
21. Routine procedures need not be recorded every time it is performed.	**GOV**	0	25	20	2	33	22	**102**
	PRIV	2	9	20	4	30	19	**84**
	TOTAL	**2**	**34**	**40**	**6**	**63**	**41**	**186**
22. I will never be involved in a legal inquiry or a court case.	**GOV**	3	7	10	39	28	15	**102**
	PRIV	2	1	8	28	21	24	**84**
	TOTAL	**5**	**8**	**18**	**67**	**49**	**39**	**186**
23. My nursing training has prepared me to keep accurate records.	**GOV**	1	59	40	0	2	0	**102**
	PRIV	0	39	39	1	5	0	**84**
	TOTAL	**1**	**98**	**79**	**1**	**7**	**0**	**186**
24. The documentation system that is used in our hospital is too complicated to ensure accurate record keeping.	**GOV**	3	9	8	4	60	18	**102**
	PRIV	4	4	12	9	41	14	**84**
	TOTAL	**7**	**13**	**20**	**13**	**101**	**32**	**186**

QUESTION NO.	SECTOR	NR/IR	SA	A	U	D	SD	TOTAL
25. I would keep more accurate records, if I had more time at my disposal.	**GOV**	3	14	47	6	27	5	**102**
	PRIV	2	21	31	3	26	1	**84**
	TOTAL	**5**	**35**	**78**	**9**	**53**	**6**	**186**
26. I don't need any more training or information regarding record keeping.	**GOV**	1	2	16	6	66	10	**102**
	PRIV	3	9	16	8	38	10	**84**
	TOTAL	**4**	**12**	**32**	**14**	**104**	**20**	**186**
27. Record keeping is just another unnecessary task	**GOV**	1	2	0	0	44	55	**102**
	PRIV	5	0	0	1	43	35	**84**
	TOTAL	**6**	**2**	**0**	**1**	**87**	**90**	**186**
28. Nurses betray their relationship with the patient when they are slack in maintaining accurate records.	**GOV**	6	17	37	13	24	5	**102**
	PRIV	6	16	28	10	17	7	**84**
	TOTAL	**12**	**33**	**65**	**23**	**41**	**12**	**186**

<u>Analysis of questions 4 & 50</u>: Frequency distribution of the approaches used by nursing respondents when writing patient progress reports, per hospital

RECORD KEEPING APPROACH	HOSPITAL						TOTAL
	1	2	3	4	5	6	
A systems approach	1	6	4	4	5	4	**24**
A problem based approach	6	3	3	14	1	6	**33**
An activities of daily living approach	8	2	0	0	1	4	**15**
A combination of approaches	32	15	16	14	10	18	**105**
No specific approach – just record what comes to mind	0	0	0	0	0	0	**0**
Other approach	1	1	0	0	0	1	**3**
NR/IR	2	2	0	1	0	1	**6**
TOTAL	**50**	**29**	**23**	**33**	**17**	**34**	**186**

<u>Analysis of questions 4 & 50</u>: Frequency and ratio (%) distribution of the record keeping approaches used when writing patient progress reports in Government and Private hospitals

APPROACH	GOVERNMENT HOSPITALS		PRIVATE HOSPITALS		TOTAL	
A systems approach	11	(10.78%)	13	(15.48%)	**24**	**(12.90%)**
A problem based approach	12	(11.76%)	21	(25.00%)	**33**	**(17.74%)**
An activities of daily living approach	10	(9.80%)	5	(5.95%)	**15**	**(8.06%)**
A combination of approaches	63	(61.76%)	42	(50.00%)	**105**	**(56.45%)**
No specific approach – just record what comes to mind	0	(0.00%)	0	(0.00%)	**0**	**(0.00%)**
Other approach	2	(1.96%)	1	(1.19%)	**3**	**(1.62%)**
NR/IR	4	(3.92%)	2	(2.38%)	**5**	**(2.69%)**
TOTAL	**102**	**(54.84%)**	**84**	**(45.16%)**	**186**	**(100%)**

Analysis of questions 4 & 51: The barriers to effective record keeping, ranked according to the mean ranking score of public and private hospitals, where the lowest mean score indicates the factor that has the biggest influence, and the highest score indicates the factor that has the least influence on effective record keeping

BARRIERS TO EFFECTIVE RECORD KEEPING	MEAN RANKING SCORE (RANKING POSITION)		
	GOVERNMENT	PRIVATE	OVERALL
Having to record the same information over and over.	5.88 (06)	4.60 (03)	**5.33 (04)**
Having too little time to write down everything that must be recorded.	5.06 (03)	3.68 (01)	**4.47 (02)**
Interruptions.	3.46 (01)	4.12 (02)	**3.74 (01)**
Lack of confidence by nursing personnel regarding their ability to keep accurate records.	4.84 (02)	5.62 (05)	**5.17 (03)**
Lack of sufficient (ongoing) in-service training.	5.46 (05)	5.86 (07)	**5.63 (07)**
Not knowing what is expected with regards to record keeping.	5.33 (04)	5.96 (08)	**5.60 (06)**
Not knowing what to record.	5.99 (07)	6.46 (09)	**6.19 (09)**
Not understanding the nursing process.	6.01 (08)	5.68 (06)	**5.87 (08)**
The inaccessibility of documentation.	6.99 (10)	7.44 (10)	**7.18 (10)**
Too many forms to complete /use.	6.04 (09)	4.84 (04)	**5.53 (05)**

Analysis of question 4 & 51: The barriers to effective record keeping, ranked according to the mean ranking score per hospital, where the lowest score indicates the factor considered having the biggest influence, and the highest score indicates the factor having the least influence on effective record keeping.

DESCRIPTION OF THE BARRIERS TO EFFECTIVE RECORD KEEPING	*MEAN RANKING SCORE PER HOSPITAL (OVERALL RANKING POSITION)*						*OVERALL MEAN RANKING SCORE*
	Hospital 1	*Hospital 2*	*Hospital 3*	*Hospital 4*	*Hospital 5*	*Hospital 6*	
Interruptions.	3.23 (1)	4.82 (=2)	3.14 (1)	4.41 (2)	3.69 (2)	5.53 (8)	**3.74 (1)**
Having too little time to write down everything that must be recorded.	5.89 (7)	4.36 (1)	4.05 (3)	2.95 (1)	3.23 (1)	5.13 (6)	**4.47 (2)**
Lack of confidence by nursing personnel regarding their ability to keep accurate records.	4.54 (2)	5.36 (5)	5.05 (5)	6.36 (5)	5.69 (=5)	4.47 (2)	**5.17 (3)**
Having to record the same information over-and-over.	6.94 (9)	4.82 (=2)	4.67 (4)	3.64 (3)	5.92 (7)	4.87 (3)	**5.33 (4)**
Too many forms to complete or use.	7.63 (10)	6.18 (9)	3.33 (2)	3.95 (4)	6.23 (8)	4.93 (4)	**5.53 (5)**
Not knowing what is expected with regards to record keeping.	4.77 (3)	4.91 (4)	6.48 (7)	6.73 (7)	5.69 (=5)	5.07 (5)	**5.60 (6)**
Lack of sufficient (on-going) in-service training.	4.91 (4)	5.73 (6)	6.24 (6)	6.45 (6)	5.23 (4)	5.53 (8)	**5.63 (7)**
Not understanding the Nursing Process.	5.37 (5)	6.09 (8)	7.05 (9)	7.00 (9)	4.92 (3)	4.40 (1)	**5.87 (8)**
Not knowing what to record.	5.40 (6)	6.00 (7)	6.95 (8)	6.82 (8)	7.15 =(9)	5.33 (7)	**6.19 (9)**
The inaccessibility of documentation.	6.40 (8)	6.73 (10)	8.10 (10)	7.68 (10)	7.15 (=9)	7.33 (10)	**7.18 (10)**

Analysis of questions 4 & 51: The barriers to effective record keeping, ranked according to the mean ranking score of public and private hospitals, where the lowest mean score indicates the factor that has the biggest influence, and the highest score indicates the factor that has the least influence on effective record keeping

BARRIERS TO EFFECTIVE RECORD KEEPING	MEAN RANKING SCORE (RANKING POSITION)		
	GOVERNMENT	PRIVATE	OVERALL
Having to record the same information over and over.	5.88 (06)	4.60 (03)	**5.33 (04)**
Having too little time to write down everything that must be recorded.	5.06 (03)	3.68 (01)	**4.47 (02)**
Interruptions.	3.46 (01)	4.12 (02)	**3.74 (01)**
Lack of confidence by nursing personnel regarding their ability to keep accurate records.	4.84 (02)	5.62 (05)	**5.17 (03)**
Lack of sufficient (ongoing) in-service training.	5.46 (05)	5.86 (07)	**5.63 (07)**
Not knowing what is expected with regards to record keeping.	5.33 (04)	5.96 (08)	**5.60 (06)**
Not knowing what to record.	5.99 (07)	6.46 (09)	**6.19 (09)**
Not understanding the nursing process.	6.01 (08)	5.68 (06)	**5.87 (08)**
The inaccessibility of documentation.	6.99 (10)	7.44 (10)	**7.18 (10)**
Too many forms to complete /use.	6.04 (09)	4.84 (04)	**5.53 (05)**

Analysis of questions 4, 52 – 56: Perceived availability (in percentage) of record keeping supportive activities, per hospital

SUPPORTIVE ACTIVITIES	HOSPITAL						OVERALL COMPLIANCE
	1	2	3	4	5	6	
Formal in-service training, at least once in the past 6-months	28.00%	27.59%	60.87%	33.33%	70.59%	35.29%	**38.17%**
Availability of a policy document.	78.00%	51.72%	95.70%	75.76%	82.35%	67.65%	**74.19%**
Regular record keeping audits	56.00%	31.03%	100.00%	90.91%	94.12%	85.29%	**72.58%**
Informal in-service training.	60.00%	55.17%	60.87%	45.45%	70.59%	67.65%	**59.14%**
Availability of ward / departmental supervision regarding record keeping.	66.00%	51.72%	95.65%	75.76%	76.47%	73.53%	**71.51%**

Analysis of questions 4, 52 – 56: Perceived availability (in percentage) of record keeping supportive activities in Government and Private Hospitals (desired practice aspect indicated with a darker border)

QUESTION NO.	RESPONSE	GOVERNMENT	PRIVATE	OVERALL TOTAL
52. I have received formal in-service training (e.g. a lecture) regarding record keeping, at least once in the past 6 months.	**Yes**	35.29%	41.67%	**38.17%**
	Unsure	0.00%	1.19%	**0.54%**
	No	60.78%	55.95%	**58.60%**
	NR/IR	3.92%	1.19%	**2.69%**
53. In the hospital where I work, there is no policy document / guideline available on record keeping.	**Yes**	15.69%	19.05%	**17.20%**
	Unsure	5.88%	4.76%	**5.38%**
	No	74.51%	73.81%	**74.19%**
	NR/IR	3.92%	2.38%	**3.23%**
54. Audits that evaluate record keeping and nursing care are conducted regularly in the ward / department where I work.	**Yes**	58.82%	90.47%	**73.11%**
	Unsure	8.82%	1.19%	**5.38%**
	No	26.47%	5.95%	**17.20%**
	NR/IR	5.88%	2.38%	**4.30%**
55. I have not received informal in-service training (e.g. on-the-spot training) regarding record keeping in the past month.	**Yes**	35.29%	36.90%	**36.02%**
	Unsure	0.00%	1.19%	**0.54%**
	No	58.82%	59.52%	**59.14%**
	NR/IR	5.88%	2.38%	**4.30%**

QUESTION NO.	RESPONSE	GOVERNMENT	PRIVATE	OVERALL TOTAL
56. There is no supervision in the ward / department where I work, to ensure good record keeping practices.	**Yes**	25.49%	23.81%	**24.73%**
	Unsure	0.98%	0.00%	**0.54%**
	No	68.63%	75.00%	**71.51%**
	NR/IR	4.90%	1.19%	**3.23%**

Analysis of questions 4, 57 – 63: Frequency distribution of nurses' self-reported record keeping practice behaviour, per hospital (desired practice aspect indicated with a darker border)

QUESTION NO.	HOSPITAL	NR/IR	ALWAYS	SOMETIMES	NEVER	TOTAL
57. I read (at least once a day) what other nursing personnel have recorded in the patient notes.	**1**	2	41	7	0	**50**
	2	0	22	6	1	**29**
	3	0	16	6	1	**23**
	4	1	24	8	0	**33**
	5	0	12	5	0	**17**
	6	0	30	3	1	**34**
	TOTAL	**3**	**145**	**35**	**3**	**186**
58. I write in the patient's progress notes at least once a day.	**1**	2	41	6	1	**50**
	2	2	22	4	1	**29**
	3	0	20	3	0	**23**
	4	1	27	3	2	**33**
	5	1	11	2	3	**17**
	6	1	28	3	2	**34**
	TOTAL	**7**	**149**	**21**	**9**	**186**
59. I read what other nursing personnel have recorded, because I am not sure what to write.	**1**	1	1	8	40	**50**
	2	0	1	2	36	**29**
	3	0	1	4	18	**23**
	4	1	1	6	25	**33**
	5	0	1	4	12	**17**
	6	0	2	7	25	**34**
	TOTAL	**2**	**7**	**31**	**146**	**186**
60. I look at what other nursing personnel have recorded regarding patients, as it gives me more information about the patients and therefore I can provide better care.	**1**	1	30	16	3	**50**
	2	3	16	7	3	**29**
	3	0	14	9	0	**23**
	4	1	21	8	3	**33**
	5	0	10	6	1	**17**
	6	2	20	8	4	**34**
	TOTAL	**7**	**111**	**54**	**14**	**186**
61. When writing a patient's progress notes, I base my findings on the problems or needs identified in a Nursing Care Plan.	**1**	0	33	13	4	**50**
	2	3	18	5	3	**29**
	3	0	15	7	1	**23**
	4	2	20	8	3	**33**
	5	0	15	1	1	**17**
	6	0	18	10	6	**34**
	TOTAL	**5**	**119**	**44**	**18**	**186**
62. I make use of a Nursing Care Plan drafted specifically for the patient(s) I am assigned to.	**1**	0	30	15	5	**50**
	2	3	14	6	6	**29**
	3	0	115	6	2	**23**
	4	1	17	11	4	**33**
	5	0	14	2	1	**17**
	6	2	15	6	11	**34**
	TOTAL	**6**	**105**	**46**	**29**	**186**
63. I leave lines, or part of a line, open without drawing a line through it.	**1**	1	1	4	44	**50**
	2	3	2	1	23	**29**
	3	0	2	8	13	**23**
	4	1	1	2	29	**33**
	5	0	2	2	13	**17**
	6	0	2	6	26	**34**
	TOTAL	**5**	**10**	**23**	**148**	**186**

Analysis of questions 4, 57 – 63: Frequency distribution of self-reported record keeping practice behaviour in Government and Private hospitals (desired practice aspect indicated with a darker border)

QUESTION NO.	RESPONSE	GOVERNMENT	PRIVATE	OVERALL TOTAL
57. I read (at least once a day) what other nursing personnel have recorded in the patient notes.	**Always**	79	66	**145**
	Sometimes	19	16	**35**
	Never	2	1	**3**
	NR/IF	2	1	**3**
	TOTAL	**102**	**84**	**186**
58. I write in the patient's progress notes at least once a day.	**Always**	83	66	**149**
	Sometimes	13	8	**21**
	Never	2	7	**9**
	NR/IF	4	3	**7**
	TOTAL	**102**	**84**	**186**
59. I read what other nursing personnel have recorded, because I am not sure what to write.	**Always**	3	4	**7**
	Sometimes	14	17	**31**
	Never	84	62	**146**
	NR/IF	1	1	**2**
	TOTAL	**102**	**84**	**186**
60. I look at what other nursing personnel have recorded regarding patients, as it gives me more information about the patients and therefore I can provide better care.	**Always**	60	51	**111**
	Sometimes	32	22	**54**
	Never	6	8	**14**
	NR/IF	4	3	**7**
	TOTAL	**102**	**84**	**186**
61. When writing a patient's progress notes, I base my findings on the problems or needs identified in a Nursing Care Plan.	**Always**	66	53	**119**
	Sometimes	25	19	**44**
	Never	8	10	**18**
	NR/IF	3	2	**5**
	TOTAL	**102**	**84**	**186**
62. I make use of a Nursing Care Plan drafted specifically for the patient(s) I am assigned to.	**Always**	59	46	**105**
	Sometimes	27	19	**46**
	Never	13	16	**29**
	NR/IF	3	3	**6**
	TOTAL	**102**	**84**	**186**
63. I leave lines, or part of a line, open without drawing a line through it.	**Always**	5	5	**10**
	Sometimes	13	10	**23**
	Never	80	68	**148**
	NR/IF	4	1	**5**
	TOTAL	**102**	**84**	**186**

Analysis of questions 4 & 64: A comparison of the percentage of nurses indicating the correct method of correcting mistakes, per hospital

COMBINATION	HOSPITAL						OVERALL
	1	2	3	4	5	6	
% indicating the correct method (combination 1, 8, 10, [11], 12)	4.00%	0.00%	4.35%	1.03%	5.88%	0.00%	**2.69%**
% indicating in the incorrect method (any other combination)	92.00%	89.66%	95.65%	93.94%	94.12%	97.06%	**93.55%**
NR/IR	4.00%	10.34%	0.00%	3.03%	0.00%	2.94%	**3.76%**
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Analysis of questions 4 & 64: A comparison of the percentage of nurses indicating the correct method of correcting mistakes in Government and Private Hospitals

COMBINATION	GOVERNMENT	PRIVATE	OVERALL
% indicating the correct method (combination 1, 8, 10, [11], 12)	2.94%	2.38%	**2.69%**
% indicating in the incorrect method (any other combination)	92.16%	95.24%	**93.55%**
NR/IR	4.90%	2.38%	**3.76%**
TOTAL	**100.00%**	**100.00%**	**100.00%**

Analysis of question 6 and 10 – 28: Frequency distribution of nurses' self-reported attitudes towards record keeping, according to years of experience after registration/enrolment (desired attitude indicated with a darker border)

QUESTION NO.	YEARS OF EXPERIENCE	NR/IR	SA	A	U	D	SD	TOTAL
10. The Nursing Process forms the basis of good record keeping.	**<1 year**	0	10	1	0	0	0	**11**
	1 to 5 years	0	18	13	0	0	0	**31**
	6 to 10 years	0	17	6	0	0	0	**23**
	11 to 15 years	0	17	12	0	0	0	**29**
	> 15 years	2	56	29	0	3	1	**91**
	NR/IR	0	1	0	0	0	0	**1**
	TOTAL	**2**	**119**	**61**	**0**	**3**	**1**	**186**
11. Record keeping is not an essential element of effective care delivery.	**<1 year**	0	1	1	0	5	4	**11**
	1 to 5 years	2	0	3	3	11	13	**31**
	6 to 10 years	0	2	0	0	8	13	**23**
	11 to 15 years	0	3	1	1	10	14	**29**
	> 15 years	2	2	4	1	30	52	**91**
	NR/IR	0	1	0	0	0	0	**1**
	TOTAL	**4**	**9**	**9**	**4**	**64**	**96**	**186**
12. Record keeping is a professional responsibility	**<1 year**	0	9	2	0	0	0	**11**
	1 to 5 years	1	18	9	0	2	1	**31**
	6 to 10 years	0	16	7	0	0	0	**23**
	11 to 15 years	1	16	11	0	0	1	**29**
	> 15 years	1	61	21	2	5	1	**91**
	NR/IR	0	1	0	0	0	0	**1**
	TOTAL	**3**	**121**	**50**	**2**	**7**	**3**	**186**
13. As nurses, we spend too much time on record keeping.	**<1 year**	0	1	3	1	5	1	**11**
	1 to 5 years	0	5	8	1	14	3	**31**
	6 to 10 years	0	4	6	1	9	3	**23**
	11 to 15 years	0	1	14	1	11	2	**29**
	> 15 years	1	14	30	3	35	8	**91**
	NR/IR	0	0	0	1	0	0	**1**
	TOTAL	**1**	**25**	**61**	**8**	**74**	**17**	**186**
14. Record keeping is just as important as providing patient care.	**<1 year**	0	7	4	0	0	0	**11**
	1 to 5 years	1	13	16	0	1	0	**31**
	6 to 10 years	0	11	11	0	1	0	**23**
	11 to 15 years	0	14	14	1	0	0	**29**
	> 15 years	0	50	36	0	5	0	**91**
	NR/IR	0	0	1	0	0	0	**1**
	TOTAL	**1**	**95**	**82**	**1**	**7**	**0**	**186**
15. In general, nursing records provide an up-to-date, comprehensive and concise view on the condition of, and care for the patient.	**<1 year**	0	8	3	0	0	0	**11**
	1 to 5 years	0	19	11	0	1	0	**31**
	6 to 10 years	0	13	10	0	0	0	**23**
	11 to 15 years	0	16	13	0	0	0	**29**
	> 15 years	1	55	33	0	2	0	**91**
	NR/IR	1	0	0	0	0	0	**1**
	TOTAL	**2**	**111**	**70**	**0**	**3**	**0**	**186**
16. Record keeping does not ensure patient safety.	**<1 year**	0	1	1	0	7	2	**11**
	1 to 5 years	0	2	10	1	12	6	**31**
	6 to 10 years	0	1	8	2	7	5	**23**
	11 to 15 years	1	1	7	3	12	5	**29**
	> 15 years	1	11	20	4	34	21	**91**
	NR/IR	0	0	1	0	0	0	**1**
	TOTAL	**2**	**16**	**47**	**10**	**72**	**39**	**186**

QUESTION NO.	YEARS OF EXPERIENCE	NR/IR	SA	A	U	D	SD	TOTAL
17. In general, nursing records provide a holistic profile of the physical, psychological and social factors that influence the patient's well-being.	**<1 year**	1	4	6	0	0	0	**11**
	1 to 5 years	1	8	21	0	1	0	**31**
	6 to 10 years	0	9	11	2	1	0	**23**
	11 to 15 years	3	9	16	1	0	0	**29**
	> 15 years	3	36	45	3	3	1	**91**
	NR/IR	0	0	1	0	0	0	**1**
	TOTAL	**8**	**66**	**100**	**6**	**5**	**1**	**186**
18. Nursing records facilitate communication between nursing personnel in the ward / department.	**<1 year**	0	9	1	0	1	0	**11**
	1 to 5 years	0	14	16	0	1	0	**31**
	6 to 10 years	0	14	9	0	0	0	**23**
	11 to 15 years	1	16	12	0	0	0	**29**
	> 15 years	1	41	47	0	2	0	**91**
	NR/IR	0	0	1	0	0	0	**1**
	TOTAL	**2**	**94**	**86**	**0**	**4**	**0**	**186**
19. Accurate record keeping will not protect me against possible legal action.	**<1 year**	0	1	0	1	4	5	**11**
	1 to 5 years	0	0	2	2	10	17	**31**
	6 to 10 years	2	1	1	2	4	13	**23**
	11 to 15 years	0	1	1	0	14	13	**29**
	> 15 years	1	4	7	4	38	37	**91**
	NR/IR	0	0	0	0	1	0	**1**
	TOTAL	**3**	**7**	**11**	**9**	**71**	**85**	**186**
20. The golden rule of record keeping is "if it is not recorded, it is considered not to have been done".	**<1 year**	0	9	2	0	0	0	**11**
	1 to 5 years	0	24	7	0	0	0	**31**
	6 to 10 years	0	17	6	0	0	0	**23**
	11 to 15 years	0	18	11	0	0	0	**29**
	> 15 years	0	54	33	1	2	1	**91**
	NR/IR	0	0	1	0	0	0	**1**
	TOTAL	**0**	**122**	**60**	**1**	**2**	**1**	**186**
21. Routine procedures need not be recorded every time it is performed.	**<1 year**	0	3	4	0	2	2	**11**
	1 to 5 years	0	6	7	1	12	5	**31**
	6 to 10 years	0	5	6	0	6	6	**23**
	11 to 15 years	0	5	5	1	13	5	**29**
	> 15 years	2	14	18	4	30	23	**91**
	NR/IR	0	1	0	0	0	0	**1**
	TOTAL	**2**	**34**	**40**	**6**	**63**	**41**	**186**
22. I will never be involved in a legal inquiry or a court case.	**<1 year**	1	1	1	6	0	2	**11**
	1 to 5 years	1	1	4	14	7	4	**31**
	6 to 10 years	2	2	3	9	5	2	**23**
	11 to 15 years	0	3	1	9	8	8	**29**
	> 15 years	1	1	9	28	29	23	**91**
	NR/IR	0	0	0	1	0	0	**1**
	TOTAL	**5**	**8**	**18**	**67**	**49**	**39**	**186**
23. My nursing training has prepared me to keep accurate records.	**<1 year**	0	9	2	0	0	0	**11**
	1 to 5 years	1	16	11	1	2	0	**31**
	6 to 10 years	0	13	10	0	0	0	**23**
	11 to 15 years	0	14	12	0	3	0	**29**
	> 15 years	0	45	44	0	2	0	**91**
	NR/IR	0	1	0	0	0	0	**1**
	TOTAL	**1**	**98**	**79**	**1**	**7**	**0**	**186**
24. The documentation system that is used in our hospital is too complicated to ensure accurate record keeping.	**<1 year**	0	1	0	0	6	4	**11**
	1 to 5 years	2	0	3	1	18	7	**31**
	6 to 10 years	0	4	2	0	13	4	**23**
	11 to 15 years	2	1	5	5	13	3	**29**
	> 15 years	3	6	10	7	51	14	**91**
	NR/IR	0	1	0	0	0	0	**1**
	TOTAL	**7**	**13**	**20**	**13**	**101**	**32**	**186**

QUESTION NO.	YEARS OF EXPERIENCE	NR/IR	SA	A	U	D	SD	TOTAL
25. I would keep more accurate records, if I had more time at my disposal.	**<1 year**	0	2	5	1	2	1	**11**
	1 to 5 years	1	7	11	4	8	0	**31**
	6 to 10 years	0	6	8	0	9	0	**23**
	11 to 15 years	2	3	14	0	9	1	**29**
	> 15 years	2	17	39	4	25	4	**91**
	NR/IR	0	0	1	0	0	0	**1**
	TOTAL	**5**	**35**	**78**	**9**	**53**	**6**	**186**
26. I don't need any more training or information regarding record keeping.	**<1 year**	0	1	1	0	8	1	**11**
	1 to 5 years	2	1	4	1	19	4	**31**
	6 to 10 years	0	0	3	2	15	3	**23**
	11 to 15 years	0	0	10	1	13	5	**29**
	> 15 years	2	10	14	10	48	7	**91**
	NR/IR	0	0	0	0	1	0	**1**
	TOTAL	**4**	**12**	**32**	**14**	**104**	**20**	**186**
27. Record keeping is just another unnecessary task	**<1 year**	0	1	0	0	3	8	**11**
	1 to 5 years	3	0	0	0	12	16	**31**
	6 to 10 years	0	0	0	0	13	10	**23**
	11 to 15 years	0	0	0	0	12	17	**29**
	> 15 years	3	1	0	1	47	39	**91**
	NR/IR	0	0	0	0	1	0	**1**
	TOTAL	**6**	**2**	**0**	**1**	**87**	**90**	**186**
28. Nurses betray their relationship with the patient when they are slack in maintaining accurate records.	**<1 year**	0	3	4	1	2	1	**11**
	1 to 5 years	2	5	7	5	9	3	**31**
	6 to 10 years	2	4	4	4	5	4	**23**
	11 to 15 years	3	1	18	3	4	0	**29**
	> 15 years	5	19	32	10	21	4	**91**
	NR/IR	0	1	0	0	0	0	**1**
	TOTAL	**12**	**33**	**65**	**23**	**41**	**12**	**186**

<u>Analysis of questions 6 & 50</u>: Frequency distribution of the approaches used by nursing respondents when writing patient progress reports, according to years of experience after registration/enrolment as a nurse

RECORD KEEPING APPROACH	NR/IR	YEARS OF EXPERIENCE					TOTAL
		< 1 year	**1 to 5 years**	**6 to 10 years**	**11 to 15 years**	**> 15 years**	
A systems approach	0	0	8	1	3	12	**24**
A problem based approach	0	6	7	4	5	11	**33**
An activities of daily living approach	0	1	3	4	2	5	**15**
A combination of approaches	0	3	11	13	18	60	**105**
No specific approach – just record what comes to mind	0	0	0	0	0	0	**0**
Other approach	0	0	1	0	0	2	**3**
NR/IR	1	1	1	1	1	1	**6**
TOTAL	**1**	**11**	**31**	**23**	**29**	**91**	**186**

Analysis of questions 6 & 51: The barriers to effective record keeping, ranked according to the mean ranking score and according to years of experience after registration/enrolment as a nurse, where the lowest score indicates the factor considered having the biggest influence, and the highest score indicates the factor having the least influence on effective record keeping

DESCRIPTION OF THE BARRIERS TO EFFECTIVE RECORD KEEPING	*MEAN RANKING SCORE ACCORDING TO YEARS OF EXPERIENCE (OVERALL RANKING POSITION)*					*OVERALL MEAN RANKING SCORE (RANKING POSITION)*
	<1 year	*1 – 5 years*	*6 – 10 years*	*11 – 15 years*	*>15 years*	
Interruptions.	5.33 (=5)	3.25 (1)	3.40 (1)	3.47 (1)	3.93 (1)	**3.74 (1)**
Having too little time to write down everything that must be recorded.	4.83 (3)	4.35 (2)	4.60 (2)	4.63 (3)	4.39 (2)	**4.47 (2)**
Lack of confidence by nursing personnel regarding their ability to keep accurate records.	4.50 (2)	5.95 (8)	5.53 (4)	4.47 (2)	5.11 (5)	**5.17 (3)**
Having to record the same information over-and-over.	3.50 (1)	5.45 (5)	5.93 (=7)	6.26 (=8)	5.02 (4)	**5.33 (4)**
Too many forms to complete or use.	7.83 (10)	5.40 (4)	6.80 (9)	6.26 (=8)	4.75 (3)	**5.53 (5)**
Not knowing what is expected with regards to record keeping.	5.17 (4)	5.10 (3)	5.80 (=5)	4.84 (4)	6.02 (8)	**5.60 (6)**
Lack of sufficient (on-going) in-service training.	5.33 (=5)	6.65 (9)	5.80 (=5)	5.16 (5)	5.42 (6)	**5.63 (7)**
Not understanding the Nursing Process.	5.67 (7)	5.75 (7)	5.93 (=7)	6.21 (7)	5.81 (7)	**5.87 (8)**
Not knowing what to record.	6.00 (8)	5.60 (6)	5.47 (3)	6.11 (6)	6.63 (9)	**6.19 (9)**
The inaccessibility of documentation.	6.83 (9)	7.30 (10)	7.00 (10)	7.32 (10)	7.18 (10)	**7.18 (10)**

Analysis of question 6 and 52 – 56: Self-reported availability (expressed as a percentage of the total number of respondents per experience grouping) regarding supportive activities with regards to effective record keeping, according to experience after registration/enrolment as a nurse.

SUPPORTIVE ACTIVITY	NR/IR	YEARS OF EXPERIENCE					OVERALL TOTAL
		<1 year	1 to 5 years	6 to 10 years	11 to 15 years	>15 years	
Formal in-service training, at least once in the past 6-months	0.00%	36.36%	45.16%	30.43%	31.03%	40.66%	**38.17%**
Availability of policy document.	0.00%	81.82%	64.52%	86.96%	75.86%	73.63%	**74.19%**
Regular record keeping audits	0.54%	54.55%	67.74%	69.57%	55.17%	82.42%	**72.58%**
Informal in-service training.	0.54%	63.64%	61.29%	69.57%	37.93%	61.54%	**59.14%**
Availability of ward / departmental supervision regarding record keeping.	0.00%	63.64%	74.19%	86.96%	58.62%	72.53%	**71.51%**

Analysis of question 6 and 57 – 63: Frequency distribution of nurses' self-reported record keeping practice behaviour, according to years of experience after registration/enrolment as a nurse (desired practice aspect indicated with a darker border)

QUESTION NO.	EXPERIENCE	NR/IR	ALWAYS	SOMETIMES	NEVER	TOTAL
57. I read (at least once a day) what other nursing personnel have recorded in the patient notes.	**<1 year**	0	8	3	0	**11**
	1 to 5 years	0	24	6	1	**31**
	6 to 10 years	1	16	6	0	**23**
	11 to 15 years	0	23	6	0	**29**
	> 15 years	2	73	14	2	**91**
	NR/IR	0	1	0	0	**1**
	TOTAL	**3**	**145**	**35**	**3**	**186**
58. I write in the patient's progress notes at least once a day.	**<1 year**	0	8	2	1	**11**
	1 to 5 years	0	24	6	1	**31**
	6 to 10 years	2	21	0	0	**23**
	11 to 15 years	1	22	4	2	**29**
	> 15 years	4	73	9	5	**91**
	NR/IR	0	1	0	0	**1**
	TOTAL	**7**	**149**	**21**	**9**	**186**
59. I read what other nursing personnel have recorded, because I am not sure what to write.	**<1 year**	0	0	3	8	**11**
	1 to 5 years	0	2	5	24	**31**
	6 to 10 years	1	0	3	19	**23**
	11 to 15 years	0	0	7	22	**29**
	> 15 years	1	4	13	73	**91**
	NR/IR	0	1	0	0	**1**
	TOTAL	**2**	**7**	**31**	**146**	**186**
60. I look at what other nursing personnel have recorded regarding patients, as it gives me more information about the patients and therefore I can provide better care.	**<1 year**	0	7	4	0	**11**
	1 to 5 years	1	21	7	2	**31**
	6 to 10 years	1	12	7	3	**23**
	11 to 15 years	0	18	9	2	**29**
	> 15 years	5	52	27	7	**91**
	NR/IR	0	1	0	0	**1**
	TOTAL	**7**	**111**	**54**	**14**	**186**
61. When writing a patient's progress notes, I base my findings on the problems or needs identified in a Nursing Care Plan.	**<1 year**	0	10	1	0	**11**
	1 to 5 years	0	22	8	1	**31**
	6 to 10 years	1	12	7	3	**23**
	11 to 15 years	1	18	8	2	**29**
	> 15 years	3	56	20	12	**91**
	NR/IR	0	1	0	0	**1**
	TOTAL	**5**	**119**	**44**	**18**	**186**
62. I make use of a Nursing Care Plan drafted specifically for the patient(s) I am assigned to.	**<1 year**	0	6	4	1	**11**
	1 to 5 years	1	19	7	4	**31**
	6 to 10 years	1	14	5	3	**23**
	11 to 15 years	2	13	9	5	**29**
	> 15 years	2	52	21	16	**91**
	NR/IR	0	1	0	0	**1**
	TOTAL	**6**	**105**	**46**	**29**	**186**
63. I leave lines, or part of a line, open without drawing a line through it.	**<1 year**	0	0	0	11	**11**
	1 to 5 years	1	1	3	26	**31**
	6 to 10 years	2	1	1	19	**23**
	11 to 15 years	0	0	6	23	**29**
	> 15 years	2	7	13	69	**91**
	NR/IR	0	1	0	0	**1**
	TOTAL	**5**	**10**	**23**	**148**	**186**

Analysis of questions 6 & 64: Percentage distribution regarding the recommended method of correcting mistakes, according to years of experience after registration/enrolment as a nurse

COMBINATION	YEARS OF EXPERIENCE					OVERALL
	<1 year	1 to 5 years	6 to 10 years	11 to 15 years	>15 years	
% indicating the correct method (combination 1, 8, 10, [11], 12)	0.00%	0.00%	4.35%	0.00%	4.40%	**2.69%**
% indicating in the incorrect method (any other combination)	90.91%	96.77%	91.30%	100%	92.31%	**93.55%**
NR/IR	9.09%	3.23%	4.35%	0.00%	3.29%	**3.76%**
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

STATISTICAL ANALYSIS RAW TABLES

CROSSTABS
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/FORMAT=AVALUE TABLES
/STATISTICS=CHISQ
/CELLS=COUNT COLUMN
/COUNT ROUND CELL
/METHOD=EXACT TIMER(5).

CROSSTABS

Notes

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	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.
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[DataSet3] C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav

Case Processing Summary

Variable		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
Gender:	NegAttit	184	98.9%	2	1.1%	186	100.0%
Cateory:	NegAttit	184	98.9%	2	1.1%	186	100.0%
Sector:	NegAttit	186	100.0%	0	.0%	186	100.0%
Experience:	NegAttit	185	99.5%	1	.5%	186	100.0%
Shift:	NegAttit	180	96.8%	6	3.2%	186	100.0%

Gender: Negative Attitude

Crosstab

			Attitude		Total
			Positive	Negative	
Gender	F	Count	127	49	176
		%	95.5%	96.1%	95.7%
	M	Count	6	2	8
		%	4.5%	3.9%	4.3%
Total		Count	133	51	184
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	.301[a]	1	.861	1.000
Continuity Correction[b]	.000	1	1.000	-
Likelihood Ratio	.031	1	.859	1.000
Fisher's Exact Test	-	-	-	1.000
Linear-by-Linear Association	.031[c]	1	.861	1.000
N of Valid Cases	184	-	-	-

a. Cells (25.0%) have expected count less than 5. The minimum expected count is 2.22.
b. Computed only for a 2x2 table
c. The standardized statistic is -.175

Chi-Square Tests

	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.610	-
Continuity Correction[b]	-	-
Likelihood Ratio	.610	-
Fisher's Exact Test	.610	-
Linear-by-Linear Association	.610	.313
N of Valid Cases	-	-

b. Computed only for a 2x2 table

Category of nurse: Negative attitude

Crosstab

			Attitude		Total
			Positive	Negative	
Category	ENA	Count	37	13	50
		%	28.0%	25.0%	27.2%
	EN	Count	26	16	42
		%	19.7%	30.8%	22.8%
	RN	Count	69	23	92
		%	52.3%	44.2%	50.0%
Total		Count	132	52	184
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	2.612[a]	2	.271	.288
Likelihood Ratio	2.512	2	.285	.302
Fisher's Exact Test	2.563	-	-	.288
Linear-by-Linear Association	.129[b]	1	.719	.773
N of Valid Cases	184	-	-	-

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.87
b. The standardized statistic is -.360.

Chi-Square Tests

	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	-	-
Likelihood Ratio	-	-
Fisher's Exact Test	-	-
Linear-by-Linear Association	.394	.071
N of Valid Cases	-	-

Hospital Sector: Negative attitude

Crosstab

			Attitude		Total
			Positive	Negative	
Sector	Gov	Count	80	22	102
		%	60.2%	41.5%	54.8%
	Priv	Count	53	31	84
		%	39.8%	58.5%	45.2%
Total		Count	133	53	186
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	5.317[a]	1	.021	.023
Continuity Correction[b]	4.591	1	.032	-
Likelihood Ratio	5.311	1	.021	.023
Fisher's Exact Test	-	-	-	.023
Linear-by-Linear Association	5.289	1	.021	.023
N of Valid Cases	186	-	-	-

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 23.94.
b. Computed only for a 2x2 table
c. The standardized statistic is 2.300.

Chi-Square Tests

	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.016	-
Continuity Correction[b]	-	-
Likelihood Ratio	.016	-
Fisher's Exact Test	.016	-
Linear-by-Linear Association	.016	.009
N of Valid Cases	-	-

b. Computed only for a 2x2 table

Experience: Negative attitude

Crosstab

			Attitude		Total
			Positive	Negative	
Experience	>1	Count	9	2	11
		%	6.8%	3.8%	5.9%
	1-5	Count	22	9	31
		%	16.5%	17.3%	16.8%
	6-10	Count	17	6	23
		%	12.8%	11.5%	12.4%
	11-15	Count	21	8	29
		%	15.8%	15.4%	15.7%
	15+	Count	64	27	91
		%	48.1%	51.9%	49.2%
Total		Count	133	52	185
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	.710[a]	4	.950	.956
Likelihood Ratio	.758	4	.944	.951
Fisher's Exact Test	.609	-	-	.980
Linear-by-Linear Association	.028[b]	1	.867	.875
N of Valid Cases	185	-	-	-

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 3.09.
b. The standardized statistic is -.167.

Chi-Square Tests

	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	-	
Likelihood Ratio	-	-
Fisher's Exact Test	-	-
Linear-by-Linear Association	.444	.001
N of Valid Cases	-	-

Shift: Negative attitude

Crosstab

			Attitude		Total
			Positive	Negative	
Shift	Day duty	Count	101	30	131
		%	77.7%	60.0%	72.8%
	Night duty	Count	29	20	49
		%	22.3%	40.0%	27.2%
Total		Count	130	50	180
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	5.705[a]	1	.017	.024
Continuity Correction[b]	4.847	1	.028	-
Likelihood Ratio	5.462	1	.019	.024
Fisher's Exact Test	-	-	-	.024
Linear-by-Linear Association	5.674[c]	1	.017	.024
N of Valid Cases	180	-	-	-

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.61.
b. Computed only for a 2x2 table.
c. The standardized statistic is 2.382.

Chi-Square Tests

	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.015	-
Continuity Correction[b]	-	-
Likelihood Ratio	.015	-
Fisher's Exact Test	.015	-
Linear-by-Linear Association	.015	.009
N of Valid Cases	-	-

b. Computed only for a 2x2 table

Crosstab

			Attitude		Total
			Positive	Negative	
Discipline	SU	Count	65	25	90
		%	48.9%	47.2%	48.4%
	PD	Count	15	5	20
		%	11.3%	9.4%	10.8%
	MT	Count	15	2	17
		%	11.3%	3.8%	9.1%
	MD	Count	38	21	59
		%	26.6%	39.6%	31.7%
Total		Count	133	53	186
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	3.937[a]	3	.268	.264
Likelihood Ratio	4.311	3	.230	.243
Fisher's Exact Test	3.789	-	-	.279
Linear-by-Linear Association	.561[b]	1	.454	.468
N of Valid Cases	186	-	-	-

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 4.84.
b. The standardized statistic is .749.

Chi-Square Tests

	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	-	-
Likelihood Ratio	-	-
Fisher's Exact Test	-	-
Linear-by-Linear Association	.245	.036
N of Valid Cases	-	-

SORT CASES BY EXPERIENCE(A).
*Nonparametric Tests: Independent Samples.
NPTESTS
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/MISSING SCOPE=ANALYSIS USERMISSING=EXCLUDE
/CRITERIA ALPHA=0.05 CILEVEL=95.

Nonparametric Tests

Notes

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Statistics

Attitude

N	Valid	186
	Missing	0
Median		56.00
Percentiles	25	51.00
	50	56.00
	75	60.25

Crosstabs

Notes

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Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
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[DataSet4] C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav

Gender: Inadequate knowledge

Crosstab

			Knowledge		Total
			Adequate	Inadequate	
Gender	Female	Count	130	45	175
		%	94.9%	97.8%	95.6%
	Male	Count	7	1	8
		%	5.1%	2.2%	4.4%
Total		Count	137	46	183
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.710[a]	1	.399	.469	.358
Continuity Correction[b]	.181	1	.670	-	-
Likelihood Ratio	.817	1	.366	.469	.358
Fisher's Exact Test	-	-	-	.682	.358
Linear-by-Linear Association	.706[c]	1	.401	.469	.358
N of Valid Cases	183	-	-	-	-

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.01.

b. Computed only for a 2x2 table

c. The standardized statistic is -.840.

Chi-Square Tests

	Point Probability
Linear-by-Linear Association	.265

Category: Inadequate knowledge

Crosstab

			Knowledge		Total
			Adequate	Inadequate	
Category	ENA	Count	28	21	49
		%	20.4%	45.7%	26.8%
	EN	Count	31	11	42
		%	22.6%	23.9%	23.0%
	RN	Count	78	14	92
		%	56.9%	30.4%	50.3%
Total		Count	137	46	183
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	13.012[a]	2	.001	.001	-
Likelihood Ratio	12.665	2	.002	.002	-
Fisher's Exact Test	12.613	-	-	.002	-
Linear-by-Linear Association	12.805[b]	1	.000	.000	.000
N of Valid Cases	183	-	-	-	-

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.56.

b. The standardized statistic is -3.578.

Chi-Square Tests

	Point Probability
Linear-by-Linear Association	.000

Sector: Inadequate knowledge

Crosstab

			Knowledge		Total
			Adequate	Inadequate	
Sector	Government	Count	80	22	102
		%	58.0%	46.8%	55.1%
	Private	Count	58	25	83
		%	42.0%	53.2%	44.9%
Total		Count	138	47	185
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.766[a]	1	.184	.235	.123
Continuity Correction[b]	1.344	1	.246	-	-
Likelihood Ratio	1.759	1	.185	.235	.123
Fisher's Exact Test	-	-	-	.235	.123
Linear-by-Linear Association	1.756[c]	1	.185	.235	.123
N of Valid Cases	185	-	-	-	-

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.09.

b. Computed only for a 2x2 table

c. The standardized statistic is 1.325.

Chi-Square Tests

	Point Probability
Linear-by-Linear Association	.056

Experience: Inadequate knowledge

Crosstab

			Knowledge		Total
			Adequate	Inadequate	
Experience	>1	Count	7	4	11
		%	5.1%	8.7%	6.0%
	1-5	Count	21	10	31
		%	15.2%	21.7%	16.8%
	6-10	Count	16	7	23
		%	11.6%	15.2%	12.5%
	11-15	Count	25	4	29
		%	18.1%	8.7%	15.8%
	15+	Count	69	21	90
		%	50.0%	45.7%	48.9%
Total		Count	138	46	184
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.067[a]	4	.397	.404	-
Likelihood Ratio	4.208	4	.379	.394	-
Fisher's Exact Test	4.334	-	-	.364	-
Linear-by-Linear Association	1.348[b]	1	.246	.249	.129
N of Valid Cases	184	-	-	-	-

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 2.75.

b. The standardized statistic is -1.161.

Chi-Square Tests

	Point Probability
Linear-by-Linear Association	.000

Shift: Inadequate knowledge

Crosstab

			Knowledge		Total
			Adequate	Inadequate	
Shift	Day duty	Count	104	27	131
		%	76.5%	62.8%	73.2%
	Night duty	Count	32	16	48
		%	23.5%	37.2%	26.8%
Total		Count	136	43	179
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.115[a]	1	.078	.113	.061
Continuity Correction[b]	2.457	1	.117	-	-
Likelihood Ratio	2.980	1	.084	.113	.061
Fisher's Exact Test	-	-	-	.113	.061
Linear-by-Linear Association	3.098[c]	1	.078	.113	.061
N of Valid Cases	179	-	-	-	-

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.53.

b. Computed only for a 2x2 table

c. The standardized statistic is 1.760.

Chi-Square Tests

	Point Probability
Linear-by-Linear Association	.034

```
CROSSTABS   /TABLES=GENDER Category Sector EXPerince2 Shift BY BadBeh   /FORMAT=AVALUE
TABLES   /STATISTICS=CHISQ   /CELLS=COUNT COLUMN   /COUNT ROUND CELL
/METHOD=EXACT TIMER(5).
```

Crosstabs Practice behaviour

Notes

	Output Created	27-Jan-2010 12:08:47
	Comments	
Input	Data	C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	186
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.
	Syntax	CROSSTABS /TABLES=GENDER Category Sector EXPerince2 Shift BY BadBeh /FORMAT=AVALUE TABLES /STATISTICS=CHISQ /CELLS=COUNT COLUMN /COUNT ROUND CELL /METHOD=EXACT TIMER(5).
Resources	Processor Time	0:00:00.157
	Elapsed Time	0:00:00.171
	Dimensions Requested	2
	Cells Available	174762
	Time for Exact Statistics	0:00:00.150

[DataSet4] C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav

Case Processing Summary

		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
Gender:	Inad Beh	183	98.4%	3	1.6%	186	100.0%
Category:	Inad Beh	183	98.4%	3	1.6%	186	100.0%
Sector:	Inad Beh	185	99.5%	1	.5%	186	100.0%
Exp:	Inad Beh	184	98.9%	2	1.1%	186	100.0%
Shift:	Inad Beh	179	96.2%	7	3.8%	186	100.0%

Gender: Unacceptable practice behaviour

Crosstab

			Practice behaviour		Total
			Adequate	Inadequate	
Gender	F	Count	119	56	175
		%	94.4%	98.2%	95.6%
	M	Count	7	1	8
		%	5.6%	1.8%	4.4%
Total		Count	126	57	183
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.356[a]	1	.244	.438	.227
Continuity Correction[b]	.600	1	.439	-	-
Likelihood Ratio	1.588	1	.208	.290	.227
Fisher's Exact Test	-	-	-	.438	.227
Linear-by-Linear Association	1.349[c]	1	.245	.438	.227
N of Valid Cases	183	-	-	-	-

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.49.

b. Computed only for a 2x2 table

c. The standardized statistic is -1.161.

Chi-Square Tests

	Point Probability
Linear-by-Linear Association	.180

Category: Practice behaviour

Crosstab

			Practice behaviour		
			Acceptable	Unacceptable	Total
Category	ENA	Count	34	15	49
		%	27.2%	25.9%	26.8%
	EN	Count	22	20	42
		%	17.6%	34.5%	23.0%
	RN	Count	69	23	92
		%	55.2%	39.7%	50.3%
Total		Count	125	58	183
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.851[a]	2	.033	.032	-
Likelihood Ratio	6.619	2	.037	.038	-
Fisher's Exact Test	6.627	-	-	.036	-
Linear-by-Linear Association	1.112[b]	1	.292	.304	.168
N of Valid Cases	183	-	-	-	-

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.31.

b. The standardized statistic is -1.054.

Chi-Square Tests

	Point Probability
Linear-by-Linear Association	.043

Sector: Unacceptable practice behaviour

Crosstab

			Practice behaviour		Total
			Acceptable	Unacceptable	
Sector	Gov	Count	70	32	102
		%	55.6%	54.2%	55.1%
	Priv	Count	56	27	83
		%	44.4%	45.8%	44.9%
Total		Count	126	59	185
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.028[a]	1	.867	.875	.495
Continuity Correction[b]	.000	1	.992	-	-
Likelihood Ratio	.028	1	.867	.875	.495
Fisher's Exact Test	-	-	-	.875	.495
Linear-by-Linear Association	.028[c]	1	.867	.875	.495
N of Valid Cases	185	-	-	-	-

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 26.47.

b. Computed only for a 2x2 table

c. The standardized statistic is .168.

Chi-Square Tests

	Point Probability
Linear-by-Linear Association	.124

Experience: Unacceptable practice behaviour

Crosstab

			Practice behaviour		Total
			Acceptable	Unacceptable	
Experience	>1	Count	8	3	11
		%	6.3%	5.2%	6.0%
	1-5	Count	23	8	31
		%	18.3%	13.8%	16.8%
	6-10	Count	17	6	23
		%	13.5%	10.3%	12.5%
	11-15	Count	15	14	29
		%	11.9%	24.1%	15.8%
	15+	Count	63	27	90
		%	50.0%	46.6%	48.9%
Total		Count	126	58	184
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.744[a]	4	.315	.318	-
Likelihood Ratio	4.522	4	.340	.360	-
Fisher's Exact Test	4.457	-	-	.345	-
Linear-by-Linear Association	3.057[b]	1	.080	.086	.045
N of Valid Cases	184	-	-	-	-

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 3.47.

b. The standardized statistic is 1.749.

Chi-Square Tests

	Point Probability
Linear-by-Linear Association	.000

Shift: Unacceptable practice behaviour

Crosstab

			Practice behaviour		
			Acceptable	Unaecceptable	Total
Shift	Day Duty	Count	92	39	131
		%	75.4%	68.4%	73.2%
	Night Duty	Count	30	18	48
		%	24.6%	31.6%	26.8%
Total		Count	122	57	179
		%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.967[a]	1	.325	.367	.210
Continuity Correction[b]	.644	1	.422	-	-
Likelihood Ratio	.950	1	.330	.367	.210
Fisher's Exact Test	-	-	-	.367	.210
Linear-by-Linear Association	.961[c]	1	.327	.367	.210
N of Valid Cases	179	-	-	-	-

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.28.

b. Computed only for a 2x2 table

c. The standardized statistic is .981.

Chi-Square Tests

	Point Probability
Linear-by-Linear Association	.088

EXAMINE VARIABLES=@2.AGE BY GENDER Category Sector EXPerince2 Shift /PLOT NONE /PERCENTILES(5,10,25,50,75,90,95) HAVERAGE /STATISTICS NONE /MISSING LISTWISE /NOTOTAL.

Explore

Notes

	Output Created	27-Jan-2010 12:14:59
	Comments	
Input	Data	C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	186
Missing Value Handling	Definition of Missing	User-defined missing values for dependent variables are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any dependent variable or factor used.
	Syntax	EXAMINE VARIABLES=@2.AGE BY GENDER Category Sector EXPerince2 Shift /PLOT NONE /PERCENTILES(5,10,25,50,75,90,95) HAVERAGE /STATISTICS NONE /MISSING LISTWISE /NOTOTAL.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.014

[DataSet4] C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav

Gender

Case Processing Summary

Gender		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
AGE	F	156	88.6%	20	11.4%	176	100.0%
	M	8	100.0%	0	.0%	8	100.0%

Percentiles

Gender			Percentiles				
			5	10	25	50	75
Weighted Average(Definition 1)	2.AGE	F	26.00	30.00	35.00	41.50	49.00
		M	38.00	38.00	38.50	43.00	44.00
Tukey's Hinges	2.AGE	F			35.00	41.50	49.00
		M			39.00	43.00	44.00

Percentiles

Gender			Percentiles	
			90	95
Weighted Average(Definition 1)	2.AGE	F	56.00	58.00
		M	.	.

Category

Case Processing Summary

Category		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
2.AGE	ENA	42	84.0%	8	16.0%	50	100.0%
	EN	36	85.7%	6	14.3%	42	100.0%
	RN	86	93.5%	6	6.5%	92	100.0%

Percentiles

Category			Percentiles				
			5	10	25	50	75
Weighted Average(Definition 1)	2.AGE	ENA	28.00	30.00	35.50	41.00	47.00
		EN	28.25	32.00	37.00	43.00	49.00
		RN	26.00	28.00	34.75	42.00	51.25
Tukey's Hinges	2.AGE	ENA			36.00	41.00	47.00
		EN			37.00	43.00	49.00
		RN			35.00	42.00	51.00

Percentiles

Category			Percentiles	
			90	95
Weighted Average(Definition 1)	2.AGE	ENA	51.80	54.85
		EN	55.30	56.30
		RN	57.30	59.00

Sector

Case Processing Summary

Sector		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
2.AGE	Government	90	88.2%	12	11.8%	102	100.0%
	Private	74	88.1%	10	11.9%	84	100.0%

Percentiles

Sector			Percentiles			
			5	10	25	50
Weighted Average(Definition 1)	2.AGE	Government	26.10	30.00	35.00	40.00
		Private	26.00	30.50	35.75	44.00
Tukey's Hinges	2.AGE	Government			35.00	40.00
		Private			36.00	44.00

Percentiles

Sector			Percentiles		
			75	90	95
Weighted Average(Definition 1)	2.AGE	Government	48.25	55.00	58.45
		Private	49.00	56.00	57.25
Tukey's Hinges	2.AGE	Government	48.00		
		Private	49.00		

Experience

Case Processing Summary

Experience		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
2.AGE	>1	9	81.8%	2	18.2%	11	100.0%
	1-5	25	80.6%	6	19.4%	31	100.0%
	6-10	21	91.3%	2	8.7%	23	100.0%
	11-15	27	93.1%	2	6.9%	29	100.0%
	15+	82	90.1%	9	9.9%	91	100.0%

Percentiles

Experience			Percentiles			
			5	10	25	50
Weighted Average(Definition 1)	2.AGE	<1	23.00	23.00	27.00	32.00
		1-5	24.00	24.60	27.00	35.00
		6-10	27.10	28.00	31.00	34.00
		11-15	31.80	33.00	35.00	38.00
		15+	38.00	40.00	43.75	48.00
Tukey's Hinges	2.AGE	<1			28.00	32.00
		1-5			28.00	35.00
		6-10			31.00	34.00
		11-15			35.00	38.00
		15+			44.00	48.00

Percentiles

Experience			Percentiles		
			75	90	95
Weighted Average(Definition 1)	2.AGE	<1	37.00	.	.
		1-5	38.00	40.00	43.50
		6-10	41.00	51.20	53.80
		11-15	44.00	51.80	55.60
		15+	53.25	58.00	59.00
Tukey's Hinges	2.AGE	<1	37.00		
		1-5	38.00		
		6-10	38.00		
		11-15	43.00		
		15+	53.00		

Shift

Case Processing Summary

Shift		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
2.AGE	Day Duty	118	90.1%	13	9.9%	131	100.0%
	Night Duty	46	93.9%	3	6.1%	49	100.0%

Percentiles

Shift			Percentiles			
			5	10	25	50
Weighted Average(Definition 1)	2.AGE	Day Duty	26.00	29.90	34.75	41.00
		Night Duty	28.00	32.70	38.00	42.00
Tukey's Hinges	2.AGE	Day Duty			35.00	41.00
		Night Duty			38.00	42.00

Percentiles

Shift			Percentiles		
			75	90	95
Weighted Average(Definition 1)	2.AGE	Day Duty	48.25	53.10	56.05
		Night Duty	54.00	58.00	59.30
Tukey's Hinges	2.AGE	Day Duty	48.00		
		Night Duty	54.00		

NPAR TESTS /M-W= @2.AGE BY GENDER(0 1) /MISSING ANALYSIS.

NPar Tests

Notes

	Output Created	27-Jan-2010 12:20:02
	Comments	
Input	Data	C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	186
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
	Syntax	NPAR TESTS /M-W= @2.AGE BY GENDER(0 1) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.000
	Number of Cases Allowed[a]	112347

a. Based on availability of workspace memory.

[DataSet4] C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav

Mann-Whitney Test

Ranks

Gender		N	Mean Rank	Sum of Ranks
2.AGE	F	160	84.41	13505.50
	M	8	86.31	690.50
	Total	168		

Test Statistics[a]

	2.AGE
Mann-Whitney U	625.500
Wilcoxon W	13505.500
Z	-.108
Asymp. Sig. (2-tailed)	.914

a. Grouping Variable: GENDER

NPAR TESTS /M-W= @2.AGE BY Sector(0 1) /MISSING ANALYSIS.

NPar Tests

Notes

	Output Created	27-Jan-2010 12:20:56
	Comments	
Input	Data	C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	186
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
	Syntax	NPAR TESTS /M-W= @2.AGE BY Sector(0 1) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.000
	Number of Cases Allowed[a]	112347

a. Based on availability of workspace memory.

[DataSet4] C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav

Mann-Whitney Test

Ranks

Sector		N	Mean Rank	Sum of Ranks
2.AGE	Government	94	81.67	7677.00
	Private	75	89.17	6688.00
	Total	169		

Test Statistics[a]

	2.AGE
Mann-Whitney U	3212.000
Wilcoxon W	7677.000
Z	-.991
Asymp. Sig. (2-tailed)	.322

a. Grouping Variable: Sector

NPAR TESTS /M-W= @2.AGE BY Shift(0 1) /MISSING ANALYSIS.

NPar Tests

Notes

	Output Created	27-Jan-2010 12:21:19
	Comments	
Input	Data	C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	186
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
	Syntax	NPAR TESTS /M-W= @2.AGE BY Shift(0 1) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.015
	Elapsed Time	0:00:00.015
	Number of Cases Allowed[a]	112347

a. Based on availability of workspace memory.

[DataSet4] C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav

Mann-Whitney Test

Ranks

Shift		N	Mean Rank	Sum of Ranks
2.AGE	Day Duty	120	79.13	9495.00
	Night Duty	46	94.91	4366.00
	Total	166		

Test Statistics[a]

	2.AGE
Mann-Whitney U	2235.000
Wilcoxon W	9495.000
Z	-1.895
Asymp. Sig. (2-tailed)	.058

a. Grouping Variable: Shift

NPAR TESTS /K-W=@2.AGE BY Category(1 3) /MISSING ANALYSIS.

NPar Tests

Notes

	Output Created	27-Jan-2010 12:22:33
	Comments	
Input	Data	C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	186
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
	Syntax	NPAR TESTS /K-W=@2.AGE BY Category(1 3) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.016
	Elapsed Time	0:00:00.017
	Number of Cases Allowed[a]	112347

a. Based on availability of workspace memory.

[DataSet4] C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav

Kruskal-Wallis Test

Ranks

Category		N	Mean Rank
2.AGE	ENA	42	77.49
	EN	37	87.03
	RN	89	86.76
	Total	168	

Test Statistics[a,b]

	2.AGE
Chi-Square	1.166
Df	2
Asymp. Sig.	.558

a. Kruskal Wallis Test

b. Grouping Variable: Category

NPAR TESTS /K-W=@2.AGE BY EXPerince2(1 5) /MISSING ANALYSIS.

NPar Tests

Notes

	Output Created	27-Jan-2010 12:22:57
	Comments	
Input	Data	C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	186
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Resources	Syntax	NPAR TESTS /K-W=@2.AGE BY EXPerince2(1 5) /MISSING ANALYSIS.
	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.000
	Number of Cases Allowed[a]	112347

a. Based on availability of workspace memory.

[DataSet4] C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav

Kruskal-Wallis Test

Ranks

Experience		N	Mean Rank
2.AGE	1	9	5.00
	Total	9[a]	

a. There is only one non-empty group. Kruskal-Wallis Test cannot be performed.

SORT CASES BY EXPerince2 (A). NPAR TESTS /K-W=@2.AGE BY EXPerince2(1 1115) /MISSING ANALYSIS.

NPar Tests

Notes

	Output Created	27-Jan-2010 12:23:52
	Comments	
Input	Data	C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav
	Active Dataset	DataSet4
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	186
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
	Syntax	NPAR TESTS /K-W=@2.AGE BY EXPerince2(1 1115) /MISSING ANALYSIS.
Resources	Processor Time	0:00:00.000
	Elapsed Time	0:00:00.017
	Number of Cases Allowed[a]	112347

a. Based on availability of workspace memory.

[DataSet4] C:\Documents and Settings\Admin\My Documents\Consultations\Una K\Analysis.sav

Kruskal-Wallis Test

Ranks

Experience		N	Mean Rank
2.AGE	<1	9	28.67
	1-5	28	38.66
	6-10	21	52.33
	11-15	28	73.29
	15+	83	118.96
	Total	169	

Test Statistics[a,b]

	2.AGE
Chi-Square	88.106
Df	4
Asymp. Sig.	.000

a. Kruskal Wallis Test

b. Grouping Variable: Experience

REGRESSION ANALYSIS
Attitude

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Category			2.573	2	.276			
	Category: ENA	.560	.453	1.533	1	.216	1.751	.721	4.253
	Category: EN	-.053	.402	.017	1	.896	.949	.431	2.088
	Constant: RN	-1.046	.322	10.525	1	.001	.351		

a. Variable(s) entered on step 1: Category

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Gender: M	-.146	.834	.031	1	.861	.864	.169	4.427
	Constant: F	-.952	.168	32.070	1	.000	.386		

a. Variable(s) entered on step 1: Gender

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Experience			.695	4	.952			
	Exp: <1	.610	.876	.485	1	.486	1.841	.331	10.253
	Exp: 1-5	.641	.815	.619	1	.431	1.898	.385	9.373
	Exp: 6-10	.463	.915	.256	1	.613	1.588	.264	9.538
	Exp: 11-15	.539	.885	.371	1	.543	1.714	.302	9.719
	Constant: 15+	-1.504	.782	3.702	1	.054	.222		

a. Variable(s) entered on step 1: Experience

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Sector: Priv	.755	.330	5.221	1	.022	2.127	1.113	4.063
	Constant: Gov	-1.291	.241	28.758	1	.000	.275		

a. Variable(s) entered on step 1: Sector

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Discipline			3.666	3	.300			
	Discpl: Paed	-.143	.567	.064	1	.801	.867	.285	2.636
	Discpl: Mat	-1.059	.789	1.804	1	.179	.347	.074	1.627
	Discpl: Med	.362	.360	1.016	1	.314	1.437	.710	2.907
	Constant: Surg	-.956							

a. Variable(s) entered on step 1: Discipline

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Shift: Night	.842	.357	5.556	1	.018	2.322	1.152	4.678
	Constant: Day	-1.214	.208	34.084	1	.000	.297		

a. Variable(s) entered on step 1: Shift

Knowledge

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Gender: M	-.885	1.083	.668	1	.414	.413	.049	3.447
	Constant: F	-1.061	.173	37.622	1	.000	.346		

a. Variable(s) entered on step 1: Gender

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Category			12.210	2	.002			
	Category: ENA	1.430	.409	12.202	1	.000	4.179	1.873	9.321
	Category: EN	.682	.455	2.240	1	.135	1.977	.810	4.827
	Constant: RN	-1.718	.290	35.019	1	.000	.179		

a. Variable(s) entered on step 1: Category

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Sector: Gov	-.449	.339	1.753	1	.185	.638	.328	1.241
	Constant: Priv	-.842	.239	12.373	1	.000	.431		

a. Variable(s) entered on step 1: Sector

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Experience			3.915	4	.418			
	Exp: <1	1.273	.826	2.373	1	.123	3.571	.707	18.040
	Exp: 1-5	1.091	.662	2.718	1	.099	2.976	.814	10.883
	Exp: 6-10	.643	.593	1.174	1	.279	1.902	.595	6.086
	Exp: 11-15	1.006	.704	2.043	1	.153	2.734	.688	10.863
	Constant: 15+	-1.833	.539	11.581	1	.001	.160		

a. Variable(s) entered on step 1: Experience

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Shift: Night	.655	.375	3.059	1	.080	1.926	.924	4.14
	Constant: Day	-1.349	.216	38.982	1	.000	.260		

a. Variable(s) entered on step 1: Shift

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Discipline			.989	3	.804			
	Discpl: Surg	.405	.550	.544	1	.461	1.500	.511	4.407
	Discpl: Paed	.377	.590	.410	1	.522	1.458	.459	4.631
	Discpl: Mat	.288	.388	.550	1	.458	1.333	.623	2.853
	Constant: Med	-1.253	.254	24.413	1	.000	.286		

a. Variable(s) entered on step 1: Discipline

Practice behaviour

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Gender: M	-1.192	1.081	1.216	1	.270	.304	.036	2.527
	Constant: F	-.754	.162	21.636	1	.000	.471		

a. Variable(s) entered on step 1: Gender

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Category			6.635	2	.036			
	Category: ENA	.280	.392	.510	1	.475	1.324	.613	2.856
	Category: EN	1.003	.392	6.561	1	.010	2.727	1.266	5.877
	Constant: RN	-1.099	.241	20.820	1	.000	.333		

a. Variable(s) entered on step 1: Category

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Sector: Priv	-.053	.317	.028	1	.867	.948	.509	1.765
	Constant: Gov	-.730	.234	9.695	1	.002	.482		

a. Variable(s) entered on step 1: Sector

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Experience			4.579	4	.333			
	Exp: <1	-.912	.772	1.394	1	.238	.402	.088	1.825
	Exp: 1-5	-.987	.554	3.178	1	.075	.373	.126	1.103
	Exp: 6-10	-.778	.437	3.171	1	.075	.459	.195	1.081
	Exp: 11-15	-.972	.603	2.601	1	.107	.378	.116	1.233
	Constant: 15+	-.069	.372	.034	1	.853	.933		

a. Variable(s) entered on step 1: Experience

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Shift: Night	.347	.354	.962	1	.327	1.415	.707	2.833
	Constant: Day	-.858	.191	20.174	1	.000	.424		

a. Variable(s) entered on step 1: Shift

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Discipline			5.255	3	.154			
	Discpl: Surg	-.104	.538	.037	1	.847	.901	.314	2.585
	Discpl: Paed	-2.029	1.055	3.698	1	.054	.131	.017	1.040
	Discpl: Mat	.324	.351	.853	1	.356	1.382	.695	2.748
	Constant: Med	-.744	.226	10.868	1	.001	.475		

a. Variable(s) entered on step 1: Discipline

MULTIVARIATE ANALYSIS

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Sector: Priv	.717	.345	4.335	1	.037	2.049	1.043	4.025
	Shift: Night	.775	.363	4.561	1	.033	2.171	1.066	4.423
	Constant	-1.555	.277	31.546	1	.000	.211		

a. Variable(s) entered on step 1: Sector, Shift

ATTITUDE, KNOWLEDGE & PRACTICE BEHAVIOUR DIAGNOSTIC STATISTIC

Statistics

		Knowledge	Attitude	Behaviour
N	Valid	185	186	185
	Missing	1	0	1
Mean		14.79	55.77	15.29
Median		15.00	56.00	16.00
Mode		15	57[a]	16
Std. Deviation		2.114	7.462	2.723
Percentiles	25	13.00	51.00	14.00
	50	15.00	56.00	16.00
	75	16.00	60.25	17.00

a. Multiple modes exist. The smallest value is shown

APPENDIX I: Question references

This appendix contains the references for each question on the questionnaire.

Q No	*QUESTION*	*REFERENCE ON WHICH QUESTION IS BASED*
010	The Nursing Process forms the basis of good record keeping.	(Potgieter & Minnaar, 2002:212, 349; SANA, 1994:3; Teytelman, 2002:122)
011	Record keeping is not an essential element of effective care delivery.	(Booyens & Uys, 1989:26-28; SANA, 1994:3; Teytelman, 2002:122)
012	Record keeping is a professional responsibility.	(Deane et al., 1986:174; Dimond, 2005a:460; Regulation 2598 of the Nursing Act 33 of 2005; Regulation 387 of the Nursing Act 33 of 2005; Tapp, 1991:229; Teytelman, 2002:122-123)
013	As nurses, we spend too much time on record keeping.	(Björvell et al., 2003:209-212; Cheevakasemsook et al., 2006:369-371; Darmer et al., 2004, 328 Deane et al., 1986:175; Martin et al., 1999:350; Pelletier et al., 2005:44; Tapp, 1990:234)
014	Record keeping is just as important as providing patient care.	(Booyens & Uys, 1989:26-28; SANA, 1994:3; Teytelman, 2002:122)
015	Nursing records provide an up-to-date, comprehensive and concise view on the condition of, and care for the patient.	(Björvell et al., 2002:34-42; Booyens & Uys, 1989:26-28; Kärkkäinen & Eriksson, 2003:198-205; Martin et al., 1999:345-352; Voutilainen et al., 2004:72-81)
016	Record keeping does not ensure patient safety.	(Booyens & Uys, 1989:26-28; Chaboyer et al., 2008:255; Wilson et al., 1995:458-471; Wilson et al., 1999:415)
017	Nursing records provide a holistic profile of the physical, psychological and social factors that influence the patient's well-being.	(Björvell et al., 2002:34-42; Booyens & Uys, 1989:26-28; Kärkkäinen & Eriksson, 2003:198-205; Martin et al., 1999:345-352; Potgieter & Minnaar, 2002:205-207; Uys, 1999:26-27; Yura & Walsh, 1978: 95-98)
018	Nursing records facilitate communication between nursing personnel in the ward / department.	(Aiken & Catalano, 1994:236; Deane et al., 1986:174; Dimond, 2005a:461; SANA, 1994:24; Teytelman, 2002:122; Troskie, 2002:346; Wood, 2003:26-27)
019	Accurate record keeping will not protect me against possible legal action.	(Aiken & Catalano, 1994:236; Deane et al., 1986:174; Dimond, 2005a:461; SANA, 1994:24; Teytelman, 2002:122; Troskie, 2002:346; Wood, 2003:26-27)
020	The golden rule of record keeping is "if it is not recorded, it is considered not to have been done".	(Herbst, 1997:39)
021	Routine procedures need not be recorded every time it is performed.	(Booyens & Uys, 1989:26-29; Geyer, 2004:40-42; Herbst, 1997:39-41)
022	I will never be involved in a legal inquiry or a court case.	(Deane et al., 1986:174; Dimond, 2005a:460; Regulation 2598 of the Nursing Act 33 of 2005; Regulation 387 of the Nursing Act 33 of 2005; Tapp, 1991:229; Teytelman, 2002:122-123)
023	My nursing training has prepared me to keep accurate records.	(Cheevakasemsook et al., 2006:370-371; Darmer et al., 2004:330; Tapp, 1990:236)
024	The documentation system that is used in our hospital is too complicated to ensure accurate record keeping.	(Björvell et al., 2003:213; Cheevakasemsook et al., 2006:368-370; Howse & Bailey, 1992:375; Martin et al., 1999:34; Tapp, 1990:236-237)
025	I would keep more accurate records, if I had more time at my disposal.	(Björvell et al., 2003:209-212; Cheevakasemsook et al., 2006:369-371; Darmer et al., 2004:328; Deane et al., 1986:175; Martin et al., 1999:350; Pelletier et al., 2005:44; Tapp, 1990:234)
026	I don't need any more training or information regarding record keeping.	(Björvell et al., 2003:213; Cheevakasemsook et al., 2006:370-371; Darmer et al., 2004:330; Tapp, 1990:236)
027	Record keeping is just another unnecessary task.	(Björvell et al., 2003:213; Howse & Bailey, 1999:376; Kärkkäinen & Eriksson, 2005:206: Martin et al., 1999:349; Pelletier et al., 2005:43-44; Tapp, 1990:237)
028	Nurses betray their relationship with the patient when they are slack in maintaining accurate records.	(SANA, 1994:3; Teytelman, 2002:122)

Q No	QUESTION	REFERENCE ON WHICH QUESTION IS BASED
029	Records must be kept in permanent form, i.e. permanent ink.	(Booyens & Uys, 1989:26-28; Dimond, 2005a:461; SANA, 1994:47; Teytelman, 2002:124)
030	The date must be indicated with each entry I make.	(Booyens & Uys, 1989:26-28; Dimond, 2005a:461; Griffiths et al., 2007:1324-1327; SANA, 1994:48: Teytelman, 2002:124; Wood, 2003:27)
031	When an entry is made in the patient record, the time must be recorded.	(Booyens & Uys, 1989:26-28; Dimond, 2005a:461; Griffiths et al., 2007:1324-1327; SANA, 1994:48: Teytelman, 2002:124; Voutilainen et al., 2004:72-81; Wood, 2003:27)
032	Abbreviations are acceptable as long as I can remember what it means.	(Booyens & Uys, 1989:26-28; Dimond, 2005b:665-666; SANA, 1994:48; Teytelman, 2002:124; Wood, 2003:27)
033	My signature is "my mark", therefore there is no need for it to be legible, as long as I can identify it as mine.	(Björvell et al., 2002:34-42; Booyens & Uys, 1989:26-28; Dimond, 2005a:461; SANA, 1994:49: Teytelman, 2002:124; Wood, 2003:27)
034	When I use a specific type of machine (for example an infusion pump, a syringe driver, a vital signs monitor, a saturation monitor), whilst busy with patient care, I must indicate its serial number in the records that I keep.	(Booyens & Uys, 1989:26-28; SANA, 1994:49)
035	Routine patient care activities can be recorded in the patient records before I have done it, as long as I always do it in the same way.	(Booyens & Uys, 1989:26-29; Geyer, 2004:40-42; Herbst, 1997:39-41)
036	Changes and/or mistakes must be ruled out with a single line, initialled and dated.	(Deane et al., 1986:175; Dimond, 2005a:461; Documentation in Action, 2006:71; SANA, 1994:50; Troskie, 2002:347; Teytelman, 2002:123, 124; Wood, 2003:27)
037	I am responsible to record visits from other multi-disciplinary team members in the patient's nursing records.	(Booyens & Uys, 1989:26-28; Deane et al., 1986:175; Dimond, 2005a:461; Geyer, 2004:41; Regulation 2598 of the Nursing Act 33 of 2005; Regulation 387 of the Nursing Act 33 of 2005; Teytelman, 2002:124; Wood, 2003:26-27)
038	Only the Registered Nurse is allowed to write in the Progress & Evaluation Report.	(Regulation 2598 of the Nursing Act 33 of 2005; Regulation 387 of the Nursing Act 33 of 2005)
039	The following sample entry is an accurate reflection of a patient's condition, reaction or need: • *"The patient appears to have had a quiet day."*	(Booyens & Uys, 1989:26-29; Geyer, 2004:40-42)
040	The following sample entry is an accurate reflection of a patient's condition, reaction or need: • *"The patient said: 'I slept well.'"*	(Booyens & Uys, 1989:26-29; Geyer, 2004:40-42)
041	The following sample entry is an accurate reflection of a patient's condition, reaction or need: • *"The urinary catheter drained 250 ml clear, straw coloured urine."*	(Booyens & Uys, 1989:26-29; Geyer, 2004:40-42)
042	The following sample entry is an accurate reflection of a patient's condition, reaction or need: • *"+++ Blood drained from the patient's abdominal wound."*	(Booyens & Uys, 1989:26-29; Geyer, 2004:40-42)
043	Special precautions taken (for example utilisation of cot sides, restraining) for patients who are delirious, confused, aggressive or sedated, must be reflected in the records after an incident has occurred.	(Geyer, 2004:40-42; Herbst, 1997:39-41; Potgieter & Minnaar, 2002:209-210; Uys, 1999:29; Yura & Walsh, 1978:129)
044	The effectiveness of analgesia that was administered to a patient must be recorded before the end of the shift.	(Geyer, 2004:40-42; Herbst, 1997:39-41; Potgieter & Minnaar, 2002:211; Uys, 1999:29; Yura & Walsh, 1978:140-141)
045	Laboratory results that are received telephonically by a nurse must be recorded in the patient's records after the Doctor has been informed.	(Herbst, 1997:39-41)
046	I must include my legal designation / professional rank (together with my signature) at least once per patient file.	(Booyens & Uys, 1989:26-28; Dimond, 2005a:461; SANA, 1994:48; Teytelman, 2002:124; Wood, 2003:27)
047	The Scope of Practice Regulation (R2598) does not refer to my responsibility to keep records.	(Geyer, 2004:40-42; SANA, 1994:48; Regulation 2598 of the Nursing Act 33 of 2005)
048	I cannot sign an entry in the patient records on behalf of someone else.	(Dimond, 2005a:461; SANA, 1994:48; Teytelman, 2002:124; Wood, 2003:27)
049	I must use layman's terms as far as possible when keeping records – this will ensure that more people can understand what was written.	(Booyens & Uys, 1989:26-27; SANA, 1994:48; Troskie, 2002:347)

Q No	QUESTION	REFERENCE ON WHICH QUESTION IS BASED
050	When I write a report on the progress of a patient, I use… [ ] A Systems approach. [ ] A Problem based approach. [ ] An Activities of Daily Living approach. [ ] A combination of the above-mentioned approaches. [ ] No specific approach, I just write what comes to mind. [ ] Another approach, not specified here – please specify: ……	(Hitchins, 2004:301-307)
051	Nursing research shows that the problem areas in record keeping are influenced by several factors, often described as "barriers". How do you rate the influence of the following "barriers" on your ability to keep accurate records? [ ] Having to record the same information over and over. [ ] Having too little time to write down everything that must be recorded. [ ] Interruptions. [ ] Lack of confidence by nursing personnel regarding their ability to keep accurate records. [ ] Lack of sufficient (ongoing) in-service training. [ ] Not knowing what is expected with regards to record keeping. [ ] Not knowing what to record. [ ] Not understanding the Nursing Process. [ ] The inaccessibility of documentation. [ ] Too many forms to complete / use.	(Björvell et al., 2003:209-212; Cheevakasemsook et al., 2006:369-371; Darmer et al., 2004:328; Deane et al., 1986:175; Howse & Bailey, 1992:375; Martin et al., 1999:350; Pelletier et al., 2005:44; Tapp, 1990:234)
052	I have received formal in-service training (e.g. a lecture) regarding record keeping, at least once in the past 6 months.	(Björvell et al., 2002:39; Björvell et al., 2003:213; Cheevakasemsook et al., 2006:371; Darmer et al., 2006:532, 533; Griffiths et al., 2007:1325; Tapp, 1990:236, 238)
053	In the hospital where I work, there is no policy document / guideline available on record keeping.	(Björvell et al., 2002:39; Björvell et al., 2003:213; Cheevakasemsook et al., 2006:371; Darmer et al., 2006:532, 533; Griffiths et al., 2007:1325; Tapp, 1990:236, 238)
054	Audits that evaluate record keeping and nursing care are conducted regularly in ward/department where I work.	(Aiken & Catalano, 1994:236; Björvell et al., 2002:39; Björvell et al., 2003:213; Cheevakasemsook et al., 2006:371; Darmer et al., 2006:532, 533; Deane et al., 1986:174; Dimond, 2005a:461; Griffiths et al., 2007:1325; SANA, 1994:24; Tapp, 1990:236, 238; Teytelman, 2002:122; Troskie, 2002:346; Wood, 2003:26-27)
055	I have not received informal in-service training (e.g. on-the-spot training) regarding record keeping in the past month.	(Björvell et al., 2002:39; Björvell et al., 2003:213; Cheevakasemsook et al., 2006:371; Darmer et al., 2006:532, 533; Griffiths et al., 2007:1325; Tapp, 1990:236, 238)
056	There is no supervision in the ward / department where I work, to ensure good record keeping practices.	(Björvell et al., 2002:39; Björvell et al., 2003:213; Cheevakasemsook et al., 2006:371; Darmer et al., 2006:532, 533; Griffiths et al., 2007:1325; Tapp, 1990:236, 238)
057	I read (at least once a day) what other nursing personnel have recorded in the patient notes.	(Björvell et al., 2003:213; Howse & Bailey, 1999:376)
058	I write in the patient's progress notes at least once a day.	(Potgieter & Minnaar, 2002:211; Uys, 1999:29; Yura & Walsh, 1978:140-141)
059	I read what other nursing personnel have recorded, because I am not sure what to write.	(Björvell et al., 2002:39; Björvell et al., 2003:213; Cheevakasemsook et al., 2006:371; Darmer et al., 2006:532, 533; Griffiths et al., 2007:1325; Tapp, 1990:236, 238)
60	I look at what other nursing personnel have recorded regarding patients, as it gives me more information about the patients and therefore I can provide better care.	(Aiken & Catalano, 1994:236; Deane et al., 1986:174; Dimond, 2005a:461; SANA, 1994:24; Teytelman, 2002:122; Troskie, 2002:346; Wood, 2003:26-27)
61	When writing a patient's progress notes, I base my findings on the problems or needs identified in a nursing care plan.	(Björvell et al., 2002:34-42; Booyens & Uys, 1989:26-28; Grifiths et al., 2007:1324-1327; Martin et al., 1999:345-352; Potgieter & Minnaar, 2002:207; Uys, 1999:27)

Q No	*QUESTION*	*REFERENCE ON WHICH QUESTION IS BASED*
62	I make use of a Nursing Care Plan drafted specifically for the patient(s) I am assigned to.	(Booyens & Uys, 1989:26-28; Kärkkäinen & Eriksson, 2003:198-205; Potgieter & Minnaar, 2002:208-209; Uys, 1999:27-28; Yura & Walsh, 1978:115-116)
63	I leave lines, or part of a line, open without drawing a line through it.	(Geyer, 2004:40-42; Herbst, 1997:39-41; Wood, 2003:26)
64	(A multiple choice question, where respondents had to indicate how they would correct a mistake)	(Booyens & Uys, 1989:26-28; Deane et al., 1986:175; Dimond, 2005a:461; Documentation in Action, 2006:71; SANA, 1994:50; Troskie, 2002:347; Teytelman, 2002:123, 124; Wood, 2003:27)
65	(Examples of three late entries were given – respondents had to indicate which option they believed to be correct)	(Booyens & Uys, 1989:26-28; SANA, 1994:49-50; Teytelman, 2002:124; Wood, 2003:27)